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USSR Report

TRANSPORTATION



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USSR REPORT TRANSPORTATION

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CIVIL AVIATION

ARSSR CIVIL AVIATION CHIEF ON AEROFLOT'S WORK IN ARMENIA

Moscow GRAZHDANSKAYA AVIATSIYA in Russian No 7, Jul 84 pp 15-16

[Interview with Dmitriy Aleksandrovich Atbash'yan, chief of Armenian Administration of Civil Aviation, Honored Pilot of the USSR, by GRAZHDANSKAYA AVIATSIYA editorial staff: "The Sources of Acceleration"; date and place not specified]

[Text] Editorial staff: Dmitriy Aleksandrovich, what typifies the development of the administration which you head in recent years?

Atbash'yan: Above all, the vigorous adoption of achievements of scientific and technical progress, and the perfection and strengthening of the physical facility. In the 10th and 11th five-year plans we replaced the Il-18 aircraft for faster and more comfortable equipment--the Tu-134 and Tu-154 aircraft. The Yak-40 jets have arrived for local air routes.

The main airport of Armenia's capital was practically rebuilt and its name was changed from Zapadnyy to Zvartnots. A runway designed for the operation of modern aircraft, a major air terminal complex, and a number of buildings and facilities for flight subunits and ground services were built here.

There was a radical renovation of Yerevan's second airport, Yuzhnyy, which has been named Erebuni. A new spacious air terminal also appeared there and, in addition, the hangar was modernized for aircraft maintenance and a fuel and lubricant depot was built.

We placed much emphasis on the development of local routes. Runways with an artificial surface were built or renovated at the airports of Leninakan, Kafan, Stepanavan, Dzhermuk, Goris and Berd. All of them have been outfitted with modern radio navigation and communications equipment and with other special equipment.

Production spaces of the aviation-technical bases have more than doubled and the capacities of the fuel and lubricant depots have trebled thanks to the renovation and new construction. The administration's fixed capital has increased almost sixfold over the last decade as a whole.

Editorial staff: It would be of interest to learn how the collective succeeded in coping with such a vast construction program in a rather short time period.

Atbash'yan: The USSR Ministry of Civil Aviation and Gosstroy helped us accomplish this task successfully. The Armenian Communist Party Central Committee and the republic Council of Ministers provided great support. All the work was done in close contact with our republic planning and construction organizations. For example, the plan for one of the leading installations--the terminal complex of Zvartnots Airport--was developed by associates of the Armgosproyekt Institute. It was built basically by resources of the Armgidroenergostroy Construction Administration. Our builders subordinate to the Aviastroy Construction-Installation Production Association also account for a large amount of the work.

It must be admitted that there was a time when our repair and construction administration invariably would be among the laggards. The funds allocated to it were being used poorly. Capital construction plans were not being fulfilled for a single indicator. To correct such an intolerable situation we were forced to become involved with the remstroyupravleniye [repair and construction administration] in a most serious manner. We strengthened it with highly skilled personnel and concerned ourselves with developing the physical facility, and things got better.

In 1982 the construction administration was reorganized as the Armaviaremstroy Trust. It now has a powerful subsidiary sector for the production and processing of construction materials, and a large pool of vehicles, special transportation, machinery and machine tools. It is capable of accomplishing genuinely large-scale tasks. In the current five-year plan its collective turned over tens of aviation facilities for operation with an overall cost of more than 37 million rubles, and all of them were accepted with evaluations of "good" or "outstanding."

As you see, the scope of our construction is large. Considerable funds are being spent for it both from the sectorial budget and the republic budget. During 1978-1983 alone we assimilated 10.6 million rubles for capital investments of the ArSSR Council of Ministers and some 9 million for construction and installation work, and fixed capital amounting to 12.4 million rubles was placed in operation. This included the air terminals at the Erebuni and Leninakan airports, each for 300 passengers per hour, in Stepanavan and Goris for 100 passengers per hour and in Berd for 50 passengers per hour.

Editorial staff: How intensively is the fixed capital which has been turned over and which is being turned over being used?

Atbash'yan: Rather intensively. The Tu-154 aircraft, with a little more than two times greater productivity than the Il-18's, have taken over more than 70 percent of the total volume of the administration's air movements. Intermediate landings on long flights were eliminated thanks to these aircraft and the opportunity appeared to open 14 new air routes in the Tu-134 and Yak-40 aircraft.

Our average annual air movement growth rates in the 10th Five-Year Plan were 3.4 percent. The administration continues to increase the volume of air transportation work in the 11th Five-Year Plan as well, making maximum use of internal production reserves for this purpose.

Over the past three years the volume of air transportation work has increased by 57.3 percent and passenger turnover has increased 71.2 percent. The proportion of movements in the Tu-154 and Tu-134 aircraft rose to 93.3 percent. This contributed to an increase in overall shipment tonnage by one-fourth. The efficiency of passenger seat utilization rose from 85.1 to 86.5 percent, and the commercial load of aircraft rose from 91.8 to 92.4 percent. The productivity of our Tu-154's exceeds the average sectorial level. The planned production cost of one adjusted ton-kilometer was reduced by 0.7 percent. Specific consumption of aviation fuel was cut 6.1 percent. Profits rose 1.8 times.

Since the beginning of the five-year plan the administration has dispatched 3.8 million passengers, of whom 163,500 were above the plan. The proportion of air movements reached 48 percent in the overall volume of passenger movements by all kinds of transportation in the republic. In the current year our passenger turnover will be around four billion passenger-kilometers.

Editorial staff: What are the prospects for further growth in the administration?

Atbash'yan: Development of Zvartnots Airport continues, where an automated air traffic control system is being developed with republic funds. The air terminal building is being modernized for serving foreign passengers. Renovation of the freight warehouse is being completed. Its capacity will be doubled, which will provide an opportunity to process up to 120 tons of freight per day.

We are awaiting new aviation equipment which will permit an increase in air traffic between Armenia's capital and mountain rayons. Airfields already are being renovated and built for this equipment. One of them, for example, is being built at the rayon center of Megri on the site of former gorges, which are being filled in with rock from quarries of a local mine.

It is planned to renovate the health resort airport at Dzhermuk, which is known for salutary mineral waters. Without this it cannot as yet fully realize its capabilities and become transformed into a mass health resort. It is planned to put the airports of Martuni and Odzun in good order and to build a number of heliports.

As was previously the case, our administration's collective constantly enjoys the help and support of local party and soviet entities in performing this work. We try to keep them informed of our work and we strive for general interest in the work and for mutual understanding. For example, I had a meeting quite recently with the heads of transportation and communications departments of all republic party raykoms. I told them about the work of the administration's aviators and about plans for the future and familiarized them with problems of our labor collectives. There was a businesslike conversation which unquestionably will be of benefit.

But not all pressing problems can be resolved within the framework of our republic. Let's take that same construction base. The Armaviaremstroy Trust is working rather well. It has produced some three million rubles of profits since the beginning of the five-year plan, of which more than 500,000 rubles were above the plan. Its annual amount of work now reaches 27 million rubles. If we proceed from the norms established in other ministries, our trust should have a minimum of seven first-category administrations in its make-up, but it has only two of them, and this creates great difficulties in the work.

We earnestly request appropriate administrations of the Ministry of Civil Aviation to regulate the structure of Armaviaremstroy and at least take it to the minimum structural level for construction trusts existing in the other ministries and departments. At least three other independent cost-accounting subunits must be set up in our trust without delay: a construction products combine, motor transport office, and administration for operation of vehicles and machinery. This will allow its collective, as well as the entire Armenian Administration, to make more effective use of funds being invested in the development of air transportation in the republic.

Our immediate task is to successfully complete the production program of the fourth year of the 11th Five-Year Plan. We have objective opportunities for this. We are capable of performing a significant additional volume of work just by increasing the flying hours in the Tu-154 and Tu-134 aircraft. Realization of this will depend on economic expenditure of equipment resources and chiefly of aviation fuel.

Inspired by resolutions of the April 1984 CPSU Central Committee Plenum and the first session of the USSR Supreme Soviet, 11th Convocation, the collectives of all Armenian Administration enterprises are fulfilling planned quotas and socialist pledges, including in such very important indicators as an above-plan increase in labor productivity by one percent and a reduction in production cost of products by a half percent. In taking an active part in the all-union review for high culture of services for Aeroflot's passengers and clients, Armenia's aviation workers are striving to have the republic's air transportation become a standard in all respects.

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CIVIL AVIATION

MORE USE OF HELICOPTERS IN CONSTRUCTION WORK URGED

Moscow VOZDUSHNYY TRANSPORT in Russian 12 Jun 84 p 2

[Article by A. Chernitskiy, engineer: "We Continue an Important Discussion: 'A Helicopter at the Construction Site'"]

[Text] A great deal already has been written about the high effectiveness of assembly work with a helicopter, including by VOZDUSHNYY TRANSPORT. Generalization of this vast material indicates that with competent organization and preparation of the work there is a reduction in cost, labor-intensiveness and duration of the construction, and the ahead-of-schedule start-up of projects (in comparison with traditional ground-based methods of construction) provides an overall national economic effect which greatly surpasses the expenses of using a helicopter.

The qualification and general technical knowledge of the aviators is considerably higher than for the ground crane operators, and the flying craft considerably surpass ground machinery in technical perfection. For this reason the labor productivity is considerably higher for pilots than for ground workers and the economic return from their work is accordingly greater.

During the past quarter-century more than 10,000 tons of various structures have been installed from the air. This would appear to be an impressive figure, but when averaged it provides only 400 tons per year, while in the PNR [Polish People's Republic], for example, helicopters are used to install 9,000 tons per year. Just what are the reasons for our lag and what are the ways to overcome it?

For some reason the opinion exists that builders resort to the help of helicopter pilots only when they have a "hot" plan. This is far from so. A Kharkov plant waited for a helicopter for more than 1½ years. Renovation of a Minsk television tower was put off for the same amount of time because of a delay of a helicopter. It was previously planned to use a helicopter at the Chekhov Printing Combine, at the Sinara Pipe Plant, on many LEP's [electric power lines] (Pechora-Inta, Ust-Ilimsk-Korshunikha, at the Nakharskiy Pass in the Caucasus and so on), and at many other enterprises.

The opinion of R. Baron published in VOZDUSHNYY TRANSPORT (12 February 1983) to the effect that only gifted helicopter pilots are capable of this work also does not improve matters.

Of course, installation work cannot be entrusted to inexperienced pilots. The installation worker has to have a good knowledge of and "feel for" the helicopter, otherwise he will not be able to provide the requisite precision in controlling the craft. It would appear advisable to organize additional training for authorization to perform installation work so as to give crews the appropriate skills in such work. But it is unjustified to regard installation as only the lot of lone people of genius.

Something also hindering the development of helicopter installation work is the fact that in the overwhelming majority of cases the work is not included in aviation enterprise plans but is conducted "as an experiment" (haven't these experiments dragged on too long?), or it is regarded as some kind of secondary, nonmandatory work. The experience of using helicopters to install the Pechora-Inta LEP indicates graphically to what this attitude to this method of construction leads. After ordering the helicopters the builders here rejected ground machinery in advance and built neither roads nor other auxiliary ground facilities, relying wholly on aviation. But the GA [Civil Aviation] administration was very inaccurate in assigning the required helicopters and thus threatened to disrupt the construction deadlines. It was only the intervention of high echelons that assured the requisite organization of the work (newspaper KRASNOYE ZNAMYA, Syktyvkar, 20 July 1977). Such an attitude toward the assigned job is clearly incapable of strengthening the builders' trust in aviators.

Today installation work also is being conducted by GosNII GA [State Scientific Research Institute of Civil Aviation], VNII PANKh GA [Civil Aviation All-Union Scientific Research Institute for Use of Aircraft in the National Economy], and by individual aviation enterprises (Ukhta, Tyumen, Krasnodar, Petrozavodsk and so on). Each one performs this work on its own responsibility and at its own risk, without a unified methodology, without unified technology, without overall technical and logistical support, and without unified norms.

It is quite obvious that a special subunit is needed for the precise, broad organization of the work which could assume responsibility for accomplishing the entire set of tasks involved with the broad adoption of helicopter installation.

Today we have only one type of specialized helicopter-crane, the Mi-10K. Nevertheless, although other craft are ready to perform crane operations, they are considerably inferior to the helicopter-crane in many indicators.

It would appear to be time to resolve the issue of developing several types of helicopter-cranes with a varying load capacity based on today's series-produced helicopters. This will have a substantial economic effect on the entire national economy.

It is necessary to resolve the problem of wages for crews performing installation operations. Today they are being paid according to flight time and at practically the very same rates as in transportation work. But the fact is, installation requires greater strain on the nerves, a greater expenditure of

effort and higher skills than ordinary transportation work, so that the customary wage system clearly does not correspond to the amount and quality of labor put in and consequently doesn't stimulate the desire for an increase in labor productivity and a reduction in financial expenditures, expenditures of equipment operating time, and the crew's medical norm. A paradox results: the national economy is receiving an economic effect from helicopter installation but the pilots and aviation enterprises are not interested in developing it. This contradiction obviously must be resolved, and as quickly as possible.

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CIVIL AVIATION

IMPROVEMENTS IN WORK OF AIRCRAFT REPAIR PLANT NO 402

Moscow VOZDUSHNYY TRANSPORT in Russian 12 Jun 84 p 2

[Article by I. Volkov, director of GA [Civil Aviation] Aircraft Repair Plant No 402: "In the Leading Collectives: Toward Intensification Through Creativeness"]

[Text] When I chat with the workers, I dwell least of all on what we have succeeded in achieving, although I will not hide the fact that there is at times a great temptation to talk specifically about this. There seemingly are grounds for this. After all, we have won more than once in all-union competition and we are among the leaders. This year, too, we were awarded first place for the first quarter and were presented with the Challenge Red Banner of the MGA [Ministry of Civil Aviation] and the Aviation Workers Union Central Committee.

I don't dwell on successes simply so as not to give the people a feeling of self-complacency and indifference. To the contrary, speaking to the workers at meetings or conversing personally with someone, I always take advantage of the opportunity to emphasize the thought that we are faced with even more responsible tasks and they have to be accomplished by organizing matters precisely.

Our plant's collective repairs engines for the Tu-134A aircraft, and it repairs the Il-76T cargo liners and the Mi-8 helicopters. It can be seen that we perform responsible work, and so in increasing production effectiveness in every way, we nevertheless devote primary attention to work quality. I have to say that today our workers are capable of any tasks because the collective has a very high labor activeness. This didn't come at once, but only after we began to look for the most advanced forms of socialist competition and began to interest the workers not only with moral incentives, but also material incentives for vital work. It is gratifying to realize that today 80 percent of all workers at the plant are working under the brigade method for a unified order. A useful initiative such as "Provide engineer support for the workers' initiative" has become widespread in the collective.

We devote much attention to increasing labor productivity. The volume of normative net production rose 4.9 percent in 1983 just through an

improvement in this indicator, and this year labor productivity rose more than 7 percent in four months compared with the very same period of last year. The plant collective is heading confidently for the planned objective of achieving an above-plan increase in labor productivity by one percent in 1984. Calculations indicate that this will provide the enterprise with an additional 190,000 rubles of normative net production.

We realize well that the introduction of scientific developments and the use of new equipment and progressive technology is the basis for a growth in labor productivity. Therefore the plant has close ties with almost thirty different KB's [design bureaus], science research institutes and training institutes. The enterprise has set up a scientific-industrial laboratory which is at the point of technical progress. Its associates seek out, test and master all innovations which appear in our sector. Many examples indicate that such cooperation is productive. For example, together with the scientific establishments we adopted a thick chrome-plating of parts. We also jointly developed sinval, a substance which we use in place of toxic cryolin in flushing aircraft radiators.

We have begun to use the latest methods of renovating parts such as plasma jet, gas-plasma jet and detonation spraying as well as the galvanic method for the first time in the sector. The essence of these methods varies, but the result is the same: high quality. For example, in plasma jet spraying the necessary layer of metal, heated to a pulverized state, is applied to the cracks and damaged areas in the parts. After such processing a worn part reacquires its factory reliability.

A great deal of welding is done at the enterprise. Here too we introduced the latest methods of welding in a controlled atmosphere and in an automatic mode. Both methods are of great use.

Lengthy and persistent work aimed at improving quality helped us train genuine aircraft repair experts. Now 79 persons at the plant have received the title "Enterprise Worker Outstanding in Quality." This honorary title also has been conferred on many collectives, particularly V. Fadeyev's brigade of radio mechanics, L. Marenova's brigade of women upholsterers, and G. Boldina's brigade of chalkers. Sixteen brigades already have fulfilled the plan for 3½ years of the five-year plan.

This year the volume of Il-76T aircraft repairs has almost doubled. A multitude of difficult tasks arose at once, and we also plan to accomplish them jointly with the GosNIIGA [State Scientific Research Institute of Civil Aviation] and the OKB [Special Design Bureau] imeni Il'yushin. Above all we have to increase the airliner's life to 5,000 hours between repairs and the designated service life to 10,000 hours. To this end we mastered the method of repairing articles based on technical condition. For example, an aircraft comes in for repair, but far from all of its components and parts have defects. Some of them can fully serve for a long while yet. Therefore we conclude an agreement with the manufacturing enterprises, jointly inspect the equipment and identify what has to be and what doesn't have to be repaired. After this we

draw an official conclusion and the plant then performs not a complete repair, but an inspection-reconstruction repair.

Of course, unfortunately there are also many omissions in our collective's work. We see and are trying to remedy many of them. The year began successfully for us and the production program is being overfulfilled in all indicators. Now we are bending efforts to maintain the pace we have set and to keep up the people's elevated mood for vital work.

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CIVIL AVIATION

PROBLEMS AT AIRCRAFT REPAIR PLANT NO 401 INVESTIGATED

Moscow VOZDUSHNYY TRANSPORT in Russian 19 Jul 84 p 2

[Article by N. Orlova, senior economist of Plant No 401 Finance Department, People's Controller; V. Mikheyev and V. Terekhin, senior engineers of the Aviaremont Association; and VOZDUSHNYY TRANSPORT correspondent V. Rybenkov, Novosibirsk: "Newspaper Spot Inspection of Aircraft Repair Plant: There is More Indifference for Now"]

[Text] We headed for the assembly shop. We saw five workers sitting and smoking in a little square, the center of the plant yard.

"Why are you sitting, comrades?"

"We're waiting for a vehicle."

"Have you been waiting long?"

"Since the beginning of the shift."

It was around 11 o'clock. That means almost three hours of work time already had passed and five persons had not yet begun to work.

Yu. Britakin, acting chief of the repair and construction section, explained the reason for the delay:

"A request was sent to the garage as early as yesterday that they have to travel to the construction section. But you see the vehicle still isn't here."

That's how our spot inspection began at Civil Aviation Aircraft Repair Plant No 401. We won't begin to comment on this incident in detail but, running ahead, will say only that the vehicle never came for the builders.

Old cadre workers are seriously troubled by the problem of labor discipline in the shop and at the plant. They spoke indignantly about violators, and there are many. We only had to glance at the list of registered deviations in the workday schedule for the last month and immediately saw dozens of cases of being late for work and several instances of absenteeism and other infractions

of labor discipline. When we looked at documents for previous years it turned out that the sixth shop was the most unfortunate shop at the plant. Why does that happen? Shop chief V. Karpekin and his deputy P. Krutikhin themselves do not know--that's how it always was.

Absenteeism and tardiness are clear infractions of labor discipline, so to speak. They are registered in every shop. But we also encountered a concealed infraction of labor discipline at the work station which wasn't as striking.

This was especially noticeable in the fourth shop. Its chief, Yu. Smirnov, greeted us cordially and led us to his best section--instrumentation equipment. It was gratifying to learn that the best trained specialists, people who treat the "hearts" and "brains" of aircraft, work in this section. But what we saw in no way corresponded to the existing concepts. It was dirty and dusty in the room and instrument parts lay in heaps: shock absorber springs with washers, potentiometers, transistors, bolts, ballbearings... The work stations everywhere were cluttered. A. Yefremov in particular had a tool not prescribed by the instructions but, on the other hand, many tools recommended by engineering were absent.

All this immediately hits the eye of anyone who enters here, but production foreman V. Bykov is calm as if there are no violations of engineering and order and there haven't been. By the way, many are together with him in this. On hearing our critical remarks, for example, V. Koroleva, an engineer for socialist competition, even exclaimed:

"Is it really so dirty? We don't notice this dirt..."

Labor and production sanitation conditions also are being violated in other sections. For example, there are no water screens in the washing department for undercarriage repair, in the paint [malyarnyy] section of Shop No 6 and in the painting [pokraska] section of Shop No 5. In some sections we saw a violation of safety rules, particularly the use of broken stepladders which have neither wheels nor guard rails nor entire rungs.

In explaining the reasons for an infraction of labor discipline and production sanitation, the enterprise heads and chief specialists refer in the majority of cases to the congestion of shops and sections and the limited nature of production spaces.

Yes, the plant is in a city and has no opportunity to expand, but we also became convinced of something else: that even the existing production spaces are in a neglected state and are being used unprofitably. For example, equipment in warehouses is being stored in violation of instructions, the space is cluttered as a result and because of this some of the assemblies do not fit in the warehouses and are in the open air. Boiler rooms also are being used in violation of requirements, and the norms for use of water, heat and steam to repair a helicopter greatly exceed the limits.

With respect to the statement that the plant is devoid of an opportunity to build up, here too not everything is correct. Even those opportunities given the plant are not being used. Last year's capital construction plan was overloaded and only 75 percent of the funds released for current repair of shops and sections were used.

Many steps presently are being taken to impose order and discipline but, as we were told by V. Malinovskiy, chief of Shop No 5, "there still hasn't been a sharp splash." We will note that there has been none above all because on the one hand the leadership's demands have weakened (which is especially noticeable in the instrumentation equipment section of Shop No 6) and, on the other hand, normal conditions for productive labor are not being established for the workers. Not encountering strict demands as well as attention and concern for themselves on the part of the manager, many of them don't cherish the honor of their own plant very much. In such cases the result always is inauspicious. Personnel department chief N. Gerasimenko cited figures confirming this conclusion. There has been no reduction in instances of tardiness for work and absenteeism, and the personnel turnover also is high.

One conclusion suggests itself. There is no separate discipline for the workers and discipline for the administrators. A chief who is incapable of providing his subordinates with work (as in the case of the vehicle which just didn't come) and demanding that they observe order is not just risking his reputation--it will become more and more difficult for him to expect to get from people a conscientious attitude toward their work and the work of their comrades.

The truth is not new, but we cannot forget about it.

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CIVIL AVIATION

ROLE OF AERODYNAMICS IN TUPOLEV, ILYUSHIN AIRCRAFT DESIGNS

Moscow GRAZHDANSKAYA AVIATSIYA in Russian No 6, Jun 84 pp 34-35

[Article by G. Yudin, Lenin Prize laureate, doctor of technical sciences:
"Aerodynamics: Problems and Solutions"]

[Text] The outlines of a new aircraft originate in the course of a broad scientific search. Contemporary design methods are based on the comprehensive solution of numerous designer problems, the majority of which are based on that science of sciences of the aircraft builder called aerodynamics. The choice of an aerodynamic configuration of a new aircraft is the result of an entire complex of theoretical and experimental studies to attain high aerodynamic efficiency and given lifting characteristics of the wing. These parameters in turn will determine whether or not the aircraft will be economical, easily controllable, and stable in various flying conditions; in other words, they will determine whether or not the aircraft designers' work will lead to the desired results.

I have had the good fortune to work for several decades in close cooperation with renowned collectives headed by A. N. Tupolev and S. V. Il'yushin. These collectives have had--and preserved up to the present time--their own clear-cut features, style and traditions.

Tupolev worded the tasks set for the aircraft designers as follows: "The basic meaning of our work consists not so much of making certain types of aircraft as of resolving new problems of aircraft construction."

The 1950's were marked by the broad introduction of swept wings and turbojet engines which permitted a maximum approach of aircraft speeds to the speed of sound. The Tu-104 became the world's first passenger jet with a swept wing. Development of the long-range Tu-114 with a swept wing having a high aspect ratio and turboprop engines was a no less bold concept. This was successfully accomplished thanks to the great achievements of aviation science

and technology and the enormous experience in aircraft construction gained by our OKB [special design bureaus] and TsAGI [Central Aero-Hydrodynamics Institute] in making military craft.

But the aerodynamic configurations of swept wings developed on relatively thin fuselages of military aircraft naturally could not meet the entire set of demands placed on passenger aircraft.

S. V. Il'yushin wrote in this connection: "We are striving to attain perfection of an aircraft characterized by best realization of its purpose, i.e., to attain the highest combat effectiveness of military aircraft and maximum productivity of civilian aircraft. Only aircraft which most fully perform their missions can remain in production and operation for a lengthy time."

The record-making series productions of aircraft of the "Il" design and the longevity of their operation can serve as confirmation of what was said. Suffice it to recall that the Il-14 passenger aircraft developed in 1953 are being used to this day. The Il-18 aircraft have been working in Aeroflot for more than a quarter-century. More than 100 of these aircraft are being used by foreign airlines.

And so the desire to achieve high operating efficiency, especially aircraft fuel economy, can be traced in parallel with the struggle for flight speed and altitude. The growth in commercial return of passenger aircraft comes not only from increasing engine KPD [efficiency] and reducing specific fuel consumption, but also by improving the design and perfecting aerodynamics.

The high aerodynamic perfection of passenger aircraft is determined by an entire set of requirements, which change with an increase in passenger capacity, the speed and altitude range, and flight distance. The exceptionally great attention both general designers paid to questions of aerodynamic design is noteworthy. Both delved deeply into the physical essence of phenomena and personally took part in many calculations and experimental studies. For them there were no so-called "minor" problems which they would not resolve together with aerodynamics specialists, whether it concerned choice of the wing's thickness or a search for an optimum power plant. The concreteness and substantiation of opinions was the basic condition in all discussions. If someone's suggestion was accepted, however, one could be fully sure that it was realized in the best manner.

The use of a relatively thick, straight wing with a high-aspect ratio was required to obtain maximum economic efficiency of the Il-18. Such a wing permitted achieving high cruising and airfield performance. Development of a wing section for an economical flying regime to long range with a maximum commercial load was one of the chief tasks in this aircraft's aerodynamic designing. The wing had to maintain a subcritical flow-past and provide a high lift-drag ratio in a cruising regime. The experimental and design studies by TsAGI scientists were required to determine an efficient wing section. S. V. Il'yushin took an active part in conducting these studies. High-speed laminized sections with a so-called "shelved" pressure distribution developed by

Academician G. P. Svishchev were used on the aircraft as a result. Their use made it possible not only to attain the given cruising speeds, but also to assure the aircraft's low drag and high lift-drag ratio. The chosen distribution of shape and thickness of sections along the span allowed finding a compromise solution to the problems of wing aerodynamics and weight.

A rational choice of external lines of the four turboprop engine nacelles and their location also contributed to the Il-18's aerodynamic perfection. The low-wing monoplane configuration which was used forced the power plant to be located on the upper wing surface. From the standpoint of aerodynamics this causes substantial harmful interference between the nacelles and wing: the engines are in the higher velocity field of the upper wing surface. It was necessary to perform a large number of studies to determine the possibility of separating the velocity fields and eliminating the diffuser sections at the junctions of the after portion of the wing section and engine nacelle to guarantee a continuous flow-past of the aircraft in a broad range of speeds and angles of attack. The desired effect was achieved by developing new nacelle lines, extending them relative to the wing leading edge, and using special fillets.

A comprehensive solution to the problems of aerodynamics and overall configuration thus permitted providing the minimal height of the main landing gear leg and the necessary clearance between the ground and propeller blade with a low-wing monoplane arrangement. The Il-18 was designed, tested and built in exceptionally short periods of time. All its technical flight characteristics corresponded to design data (by the way, such conformity was typical of Il'yushin's design bureau). It held a worthy place among aircraft of its class in economy characteristics.

The development of new, more improved aircraft was conducted almost simultaneously with the development of first-generation gas-turbine aircraft. From the standpoint of aerodynamics, second-generation jet aircraft can be conditionally divided into two groups. The first includes aircraft with relatively thick wings swept at $35-33^\circ$, designed for cruising speeds of 800-850 km/hr (the Tu-134 and Il-62). The second group includes the faster (900-950 km/hr) Tu-154 and Il-86 with relatively thin swept wings.

Il'yushin in the early 1960's and A. N. Tupolev somewhat later proposed an arrangement for passenger aircraft with low-set swept wings and turbojet engines accommodated in the tail section of the fuselage. One of the chief tasks in the aerodynamic designing of the Il-62 wing and aircraft as a whole was to assure the necessary characteristics of longitudinal stability and controllability at high angles of attack even at the cost of certain losses in lift-drag ratio while preserving the cruising speeds reached at that time. This could be attained only by using an aerodynamic configuration of the swept wing which would provide for the appearance of an initial stall zone in the central sections and continuous flow-past of end sections at high angles of attack. The necessary reserve of critical angles of attack and consequently of lift providing longitudinal stability is created in this case. Il'yushin proposed a version of a relatively thick swept wing with a moderate

aspect ratio and a large taper with a special end "dog-tooth" along the leading edge (from the wingtip to the beginning of the aileron). It was necessary to design and test many different versions of such wings. Suffice it to say that several hundred hours of wind tunnel tests were spent to work out just the profile of the wing and "dog-tooth." The task was accomplished successfully as a result of close cooperation between the OKB and TsAGI. Chosen for the Il-62 wing was a progressively increasing, near-parabolic law for distribution of the profile camber and angle of geometric twist along the span. In addition, a considerable local bend in the leading edge was used along the "dog-tooth" span and its efficient shape and length were determined.

The Tu-154 wing has a higher aspect ratio, a lesser narrowing and approximately 20 percent less thickness compared with the Il-62 wing. This is explained by the fact that the wing for the Tu-154 was designed for high cruising speeds. The angle of wing setting on the fuselages of both aircraft is identical, and the tip chord also is set at the same angle. In contrast to the Il-62 wing, however, which had a flat center section, a geometric twist was concentrated for the first time in the center section of the Tu-154 wing. A profile with negative camber and a flattened upper surface also is used, similar to the surface of contemporary supercritical TsAGI profiles. Drag was reduced by eliminating shock stall and the aircraft's lift-drag ratio was increased by 10-20 percent as a result of a thinner and aerodynamically new configuration of the Tu-154 wing.

The wings of the Tu-154 and Il-62 provide longitudinal stability in all flight regimes, including at high angles of attack and high cruising speeds. The inner faces of the "dog-tooth" on the Il-62 wing as well as the spoilers on the upper surface of the Tu-154 wing play the part of vortex generators. They are capable of localizing the stall zones in the central sections and protecting the end sections. In take-off and landing regimes this role is performed on the Tu-154 wing by controllable slats located in the leading edge of the outboard wing. In the Il-62 this function is given to the "dog-tooth," which exerts a beneficial influence on all the aircraft's aerodynamic characteristics at high angles of attack.

More powerful, highly efficient high-lift devices were used for the first time on the Tu-154 wing in the form of slats and triple-slotted flaps (compared to the double-slotted flaps on the Il-62 wing) to provide the necessary airfield performance. The use of these high-lift devices in take-off and landing regimes allows an increase in aircraft lift by two or three times. Similar highly-effective high-lift devices for the leading and trailing edge in the form of slats and triple-slotted flaps were used later in developing wings for the Il-76 and Il-86 aircraft.

Accommodation of engines in the rear fuselage, which required the use of a T-shaped tail and a rearward shift of the wing (out of consideration for the center-of-gravity position) also became a distinguishing feature of the aerodynamic configuration of the Il-62 and Tu-154. This affected the stall characteristics at high angles of incidence beyond stalling, when an accompanying vortex sheet from the wing and vortices from the fuselage, nacelles

and engine pylons hit the horizontal tail. The destabilizing influence of such disturbances leads to a reduction in efficiency of the horizontal tail and as a result to a considerably lesser diving moment than can be obtained with an undisturbed flow.

Designed according to the principle of a "low-supporting" center wing providing for the appearance and development of an initial stall area on the inner portion of the wing, the Il-62 and Tu-154 wings permitted obtaining a favorable change in longitudinal moments, and not just in the area of high angles of incidence beyond stalling (18-20 degrees), but also in regimes of so-called deep stalling in the range of angles of 25-45 degrees.

Two problems had to be solved in addition: to optimize the location and shape of engine nacelles and pylons in order to preclude harmful interference with the wing and fuselage by achieving minimal drag in cruising regimes; and to provide uniform pressure fields ahead of the air intakes at high angles of attack. These problems are contradictory, but a compromise was found. As a result, installation of engines in the rear portion led to a relatively small increase in drag and a slight reduction in the lift-drag ratio.

One other difficulty arose: that positioning of the engine could increase the airframe weight. But a fundamentally new arrangement of the landing gear with a retractable rear member and choice of optimum sizes of the tail permitted a substantial reduction in this loss.

The new technical solutions adopted in developing the Tu-154 and Il-62 aircraft made it possible to increase the aircraft's reliability, provide for passenger comfort, and achieve a high economic effect and maximum operating conveniences. All these features deservedly placed both aircraft among the best models of their class.

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CIVIL AVIATION

QUALITY, IMPORTANCE OF CIVIL AVIATION ACADEMY TRAINING

Moscow GRAZHDANSKAYA AVIATSIYA in Russian No 6, Jun 84 pp 44-45

[Article by GRAZHDANSKAYA AVIATSIYA special correspondent V. Shitov: "In Educational Institutions: In the Command Faculty"]

[Text] It has been 25 years since the first graduation from the command faculty of the Order of Lenin Civil Aviation Academy. In a quarter-century the faculty has provided the sector with hundreds of highly skilled specialists, commanders of production. The firm alloy of theoretical knowledge acquired at the Academy and practical work experience helps them successfully accomplish the most difficult production tasks.

The bell sounded and a bright ray of sunlight which burst from the opened door of one of the auditoriums instantaneously animated the long training building corridor. Another lecture had ended for students of the command faculty at the Order of Lenin Civil Aviation Academy. Today it was given by Angelina Dmitriyevna Rubtsova, an instructor of higher mathematics and a veteran of the academic institution.

How many such lectures had there been in the years of her work--hundreds, tens of hundreds? Rubtsova remembers well the first one given for students of the command faculty which had just been established. At that time, in the mid-1950's, the students were aviation specialists who had worked more than just a single year in production prior to that. They had both extensive experience in practical work and high professional expertise, but they lacked a detailed theoretical preparation: that very basis without which it was inconceivable to manage the ever more complex production mechanism of Aeroflot. Giving them such knowledge and instilling the necessary organizing skills were the tasks which the Academy (at that time the Higher Aviation School of GVF [Civil Air Fleet]) and in particular its command faculty were called upon to accomplish.

By the way, the majority of graduates of the faculty's first levy became leaders and commanders of production well-known in Aeroflot. For example, B. Ye. Panyukov now is first deputy minister of civil aviation and an Honored Worker

of Transport of the RSFSR; V. D. Samorukov is chief of the MGA [Ministry of Civil Aviation] Foreign Relations Administration; N. P. Novikov is a commander of the Domodedovo Production Association of the Moscow Transport Administration, and V. V. Sirotin is a commander of a training subunit of the Leningrad Association, and both are honored pilots of the USSR.

The instructors at the higher educational institution also developed an instruction methodology arranged with consideration of the students' extensive production experience. There was one other task--to take a look at tomorrow and, after developing a "model" of the specialist which the sector would need in the future, to begin training him. Chief Mar Avn, Professor A. A. Novikov, Twice-Honored HSU and a former chief of VAU [Higher Aviation School], put much effort into accomplishing this task.

Twenty-five years have gone by since the day the first command faculty graduates received diplomas. The faculty's instructor collective has done much during these years. The physical facility has been considerably strengthened and expanded. There is extensive use of such progressive training forms and methods as giving problem-oriented lectures, conducting practical games, and modeling production operations and processes. The Academy's command faculty not only provides its graduates with specialized knowledge, but also gives vast general-educational training and teaches them to think analytically, to make thoroughly substantiated decisions, and to organize and solidify labor collectives. It is no accident that the experience gained at the Academy in preparing command cadres draws the attention of many foreign airlines. Each year dozens of specialists from socialist and developing countries complete the faculty.

Let's take a look at the faculty's auditoriums and training laboratories. Here, for example, is the flying-navigational instruments and control systems laboratory. Although classes already are over here, post-graduate student V. Gudín stayed around to help students polish their orientation on instruments in bad weather conditions. Fourth-course students of the command faculty V. Levashov, a flight subunit commander of the International Air Traffic Central Administration, and G. Guchik, an aircraft commander of the Magadan aviation enterprise, listen to him attentively. They have prediploma practice ahead of them. The students use every free minute to work problems of air orientation once more on the half-scale simulation unit.

This practical game training room appeared in the Academy relatively recently. A group of students under the direction of laboratory chief Ye. Khodilin sits at the display consoles set up in the room and determines the most optimum methods for organizing flight operations in the aviation enterprise.

"Let's try one other version of this little problem," says Khodilin, and the electronic markers again slip along the display screens.

Aerodynamics... This subject is of special interest to students of the command faculty specializing in the flight operation of air transport. At the Academy they study it not from dry formulas and figures, but on models of

specific aircraft blown in the wind tunnel during laboratory work. When the aerodynamics chair had just been established Academy instructors tried to strike up business contacts with other educational institutions and science research organizations and borrow from them all the best which had been accumulated in this discipline. Today people come for experience to the Academy's aerodynamics chair. By the way, extensive scientific work is carried on here, as it is in many other chairs at this educational institution. It is fully natural that many command faculty graduates are completing their post-graduate work at the Academy and defending dissertations on current problems in the development of air transportation.

Upperclass students V. Ivashchenko and V. Vikulov work enthusiastically in the aerodynamics laboratory. Their topic today is to determine the drag coefficient of axially symmetric bodies with the help of an aerodynamic experiment. Instructor D. Gorbunov, an assistant of the aerodynamics chair and the author of several interesting scientific developments, is satisfied that the students have coped with the assignment for a grade of "outstanding."

As its basis, the instruction of disciplines in the Academy's command faculty has been arranged from the first day of its existence so as not only to give students firm knowledge, but also teach them to impart the knowledge to subordinates. The fact is, it is very fine if a commander is not simply a director and administrator, but also a pedagogue and indoctrinator.

It was stated at the beginning of the article that the Academy has solved the problem of developing a future model of a specialist. Well, its specific embodiment for the command faculty was the preparation of cadres for a fundamentally new specialization--organizers of air transportation production. It began in 1978, and now the faculty trains both production personnel and political workers in this specialty and, of special importance, it prepares them with an orientation on future development of the sector and with consideration of those new forms of management activity which are just being introduced.

The faculty already has taken the first step toward organizing in the near future the training of specialists at the highest command level, but that is for tomorrow.

Each year more and more highly skilled specialists receive diplomas from the command faculty of the Order of Lenin Civil Aviation Academy. In time practically all of them hold command positions in aviation enterprises. The knowledge gained at this educational institution permits them to cope with their duties successfully and skillfully direct the work of labor collectives to accomplish the major tasks which face civil aviation today.

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MARITIME AND RIVER FLEETS

MINISTER GUZHENKO ON MARITIME FLEET SUCCESSES

Moscow MORSKOY FLOT in Russian No 7, Jul 84 pp 2-7

[Article by T. Guzhenko, minister of the USSR maritime fleet]

[Excerpts] The USSR's maritime transport, currently observing its 60th anniversary, is one of the national economy's most modern, technically advanced and economically efficient industries. Developing as an integral part of the country's Unified transportation system, the maritime fleet provides our economy with all the internal (cabotage) shipping services it needs and ensures the invulnerability of our foreign trade ties from the dictates of capitalist shipping corporations. Ships flying the red banner with the hammer and sickle now call at 1100 ports in 123 countries of the world.

Providing the maritime fleet with new types of specialized and multipurpose vessels and their integration with new high-productivity onshore transloading facilities was a stepping stone to the creation of transport-technological systems designed to ensure the movement of cargoes from manufacturer to consumer in minimal time and with the least possible material and labor costs to the national economy. This ensures the most effective utilization of the fleet's carrying capacity, especially due to a reduction in the ships' port time to load and unload freight, and creates the conditions for a cardinal change in the character of dockworkers' toil: the possibility arises to effect integrated mechanization and automation of labor-intensive operations, primarily cargo handling, make the work process safer, reduce the labor-intensiveness of loading and unloading and thereby, through increased productivity, vastly reduce the industry's manpower needs.

Some of the transport-technological systems have been functioning successfully for a number of years now, enabling the industry to deliver cargoes "door to door". Among these special mention rightfully belongs to the packet system whose development began in the late 50s-early 60s in the Far East with cabotage haulage of general cargoes on the conventional all-purpose vessels of the time. In the last few years this system has come to be widely used in the transportation of timber on timber carriers - packet carriers (deadweight from 4 to 14 thousand tons). Our maritime fleet now has about 60 such ships. Also widespread today, both in coastal and foreign trade shipping, are the container and ro-ro systems.

The container fleet numbers over 40 units deadweight from 5.7 to 14.5 thousand tons (ships of the "Aleksandr Fadeyev", "Khudozhnik Saryan" and other classes), the roros - about 50 units ranging in deadweight from 4.4 to 20 thousand tons ("Akademic Tupolev", "Inzhener Machul'skiy", "Skul'ptor Konenkov", "Kapitan Smirnov" and others). The roros are used primarily for transporting vehicles on wheels or tracks, as well as cargoes in containers, packets and trailers. Unlike cell-type container craft, the roros do not need costly onshore transloaders to load up. This is accomplished by rolling the cargoes aboard on special prime movers or under their own power. Operating efficiently are the railroad ferry systems: on the Caspian between the ports of Baku and Krasnovodsk, in the Far East between Vanino and Kholmsk, as well as the international ferry crossing between Il'yichevsk (USSR) and Varna (Bulgaria). A similar ferry line between the USSR and the GDR is under construction (Klaipeda-Mukran).

Also working very well is the international lighter carrier system "Interlichter", a product of the practical implementation of the Comprehensive program for the socialist economic integration of COMECON countries launched by Bulgaria, Hungary, the Soviet Union and Czechoslovakia. This cost-accounting enterprise has been successfully transporting goods since 1978 between Danube ports and the countries of South East Asia on board the lighter carriers "Julius Fucik" and "Tibor Samuelli" (each of 37850 tons deadweight) and lighters of the "Danube-Sea" type, maximum mass 1300 tons each). Each lighter carrier ships 26 lighters. The cargo-handling systems of the carriers can hoist or launch one or two lighters simultaneously. Transloading all 26 lighters takes only 13 hours, in other words, the speed of loading-unloading attains 2600 tons per hour.

With the commissioning this year of the first Soviet-built lighter carrier, the "Aleksey Kosygin", this form of cargo haulage has begun operations in the Far East. For a transport-technological system to function successfully, there must be a high degree of organization in the processes of planning, control, interaction with other types of transport as well as with consignees and shippers. All this is likewise necessary for efficient operation of the specialized fleet and of multipurpose vessels. That is why in addition to providing the maritime fleet with a highly advanced material and technical base during the last few five-year plan periods a great deal of attention is being devoted to improving forms and methods of work and control organization.

The transition has been made to a comprehensive system of continuous operational planning, control and regulation of the movement of cargoes and the work of the fleet, ports and plants. The system is based on scientifically developed norms for labor, material and equipment input and utilizes a computerized automatic control system called "Morflot".

To achieve the best possible end result for the national economy with fullest and most efficient utilization of material and labor resources, a scientifically precise system of continuous operational planning and regulation of the work of all participants in the transportation process within the framework of a transport terminal has been developed and put into operation. The work of transport terminals under a continuous plan-schedule, which began as a Leningrad initiative, was approved in March 1978 in the CPSU CC decree "On labor cooperation between seamen, railwaymen, automobile and river transport workers in the Leningrad transport terminal". By the beginning of the 11th five-year plan 38 transport terminals had followed Leningrad's example. Even without additional capital investment, material or labor resources, each and all significantly improved their performance. In the 1978-1983 period alone the introduction of this system produced an economic effect of 80 million rubles. Thanks to speedier processing and higher static load over 800 thousand railcars were freed for other work.

From 1974 to 1984 the freight-carrying capacity of the fleet increased by 44.4 percent, freight haulage in the foreign trade field - by 37.1 percent, with net revenues rising 2.22 times. The volume of loading and unloading operations grew by 33.1 percent, profits from all activities - by 63 percent.

Maritime transport workers have successfully fulfilled all plans for the elapsed three years of the eleventh five-year plan, both in terms of the target figures for the five-year plan as a whole and the sum of the annual plans. It should be pointed out that the sum of the annual plans is in excess of the goals set by the five-year plan for these years. The plan of the first three years of the eleventh five-year plan for cabotage haulage has been fulfilled 104.3 percent, for foreign trade shipments - 102.9 percent, loading and unloading operations - 104.3 percent, industrial output (in normative value of processing) - 100.1 percent, and for profits from the main line of operations - 104.8 percent.

The Law on the State plan for the economic and social development of the USSR in 1984, which was promulgated by the ninth session of the USSR Supreme Soviet, tenth convocation, emphasizes the need to accelerate the tempo of economic development through more efficient utilization of production capacity, stricter input norms for basic material resources and their economy along every line of consumption, economy of financial resources, more rational use of the workforce and fundamental improvement of all indicators that characterize the effectiveness of production. The 1984 plan calls on maritime transport workers to increase the basic index of foreign trade haulage by 5.3 percent against 1983, fully satisfy the national economy's requirements with regard to cabotage shipments, up profits from the main line of operations by 4.9 percent and achieve 69.4 percent of the increment in freight haulage by way of increased productivity alone. The entire increment in the volume of cargo

loading and unloading must be attained with the same number of workers through higher productivity. The volume of industrial output must be increased by 4.4 percent.

State capital investments will put on line 1455.5 million rubles' worth of fixed capital assets, including 1387 million rubles of production facilities. This will raise the capital-labor ratio to 55.4 thousand rubles per worker. This year 237 thousand sq.meters of housing will be built for the industry's employees, including 17 thousand sq.meters of cooperative apartments using funds provided by the employees themselves.

The 1984 plan, though very tough, is quite fulfillable. To do so it is above all imperative that we use wisely all the resources at our disposal. In this context the cardinal issues are those that promote further improvements in our main (operational) line of work: raising the effectivity of fleet and port utilization, achieving better results in their work by further upgrading the planning and control of the transportation process through the universal and unrelenting introduction of continuous plan-schedules for operation of the fleet (NPGRF), ports (NPGRP) and transport terminals (NPGRTU), all based on the most progressive, scientifically substantiated norms concerning the input of live and objectified labor, energy and materials as well as financial resources, norms put to the practical test and approbated by pacemaker and innovator workers. The cornerstone of our transport potential is the carrying capacity of each vessel and the fleet as a whole, which should be utilized to the maximum. The attainment of this goal hinges on every worker involved in the operation, repairs and servicing of the fleet, on his conscientiousness and ability to do everything possible to increase the ship's running time, utilize to the fullest extent and with maximum efficiency her freight carrying and freight storage capacities. The problem is being resolved by all workers of the maritime fleet without exception, whether they are employed on board ship, at ports, in the ship-repair industry, the supply, trade or public eating sectors, scientific research, project design or educational institutions and organizations, in the field of planning, administration or production organization, in capital construction and repairs.

Due to the growing volume of ship repairs, which stems from structural and age changes in the fleet, special attention must be devoted to beefing up the production potential of the ship-repair industry by increasing the shift coefficient, upping the norm for mean daily output on every ship-repair job, enhancing the introduction of program-project supervision of repairs and of construction-superintendent sectors and all-purpose cost-accounting teams. It is likewise imperative to significantly increase the volume and expand the nomenclature of technical maintenance work on the fleet in operation. Greater effort should be applied to the manufacture and restoration by ship-repair yards of details of shipboard and

dockside machines and mechanisms, especially imported ones. Constant and unflagging attention must be given to the economical and rational utilization of every type of material, fuel and electricity in accordance with the country's Energy program. We are duty bound to make every effort to encourage the widest possible dissemination of the work methods and know-how of vanguard workers and innovators who were awarded USSR State prizes in 1983 for developing and putting into operation in our maritime transport a complex of new technical devices and technologies that save on every type of fuel and energy resource, bearing in mind that a 1 percent drop in the consumption of fuel by the maritime fleet alone enriches state coffers by over 4 million rubles a year.

A substantial reserve in the matter of raising the effectiveness of our work is the irreconcilable struggle against losses of cargo during transportation on board ship and processing in ports, and against financial losses due to accidents and breakdowns in the fleet and at shore enterprises. These are caused primarily by violations of labor and technological discipline.

Judging from the results of the first quarter, maritime transport workers are well on their way to living up to their socialist obligations. The plan for cargo haulage in cabotage has been fulfilled by 103.8 percent, for foreign trade shipments - 101.3 percent, loading and unloading operations - 104.2 percent. Our ship-repair yards fulfilled their production plan by 100.2 percent (in normative value of processing). Production costs were down 1.6 percent in haulage and 2.8 percent in loading and unloading. Labor productivity reached 102.3 percent of the target figure in haulage, 104.2 percent in the ports, for industrial enterprises the result was 101.7 percent.

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MARITIME AND RIVER FLEETS

DEPUTY MARITIME MINISTER ON FLEET DEVELOPMENT

Moscow VODNYI TRANSPORT in Russian 28 Jun 84 pp 1-2

[Article by B. Yunitsyn, deputy minister of the USSR maritime fleet: "Under the Flag of Land of the Soviets"]

[Excerpts] The day is not far off when the maritime fleet of the USSR will celebrate its 60th anniversary. This anniversary is like a summit from whose height one would like to examine and comprehend the traversed path.

As a result of selfless labor of maritime transport workers, the country's fleet was completely restored during the course of the postwar five-year plans. The first stage of the sector's reequipment was completed by mid-sixties, which combined modernization of operating vessels and construction of new ones, that were distinctive as regards increased carrying capacity and speed, and large series of specialized and general purpose vessels.

The fleet goes through a rapid period of "acceleration" and become considerably "taller" and stronger. The world tendency of building large-capacity vessels has found its expression in construction of the country's fleet--supertankers of the "Krym" type (with a deadweight of 150,000 t), bulk carriers of the "Zoya Kosmodem'yanskaya" type (50,000 t) and bulk tankers of the "Marshal Budenny" and "Boris Butoma" type (100,000-110,000 t). As regards their carrying capacity, each one of them surpasses an average vessel of the same purpose eight-10 fold.

During the past several years, an independent group of specialized vessels for transporting heavy cargo was formed. The vessel "Stakhanovets Kotov," which was built in the Soviet Union, can transport large-size units weighing up to 700 t. There is a possibility of transporting heavy equipment in an assembled form, which considerably reduces the volume of assembly work.

The Soviet fleet has always developed by taking into account the requirements of the national economy and foreign trade. In fulfilling the strategic program of the party aimed at acceleration of scientific and technical progress, maritime fleet workers have shifted to intensive introduction and development of transportation and technological systems: ferry, container, package, ro-ro and lighter hauling, which makes it possible to considerably raise the efficiency of the fleet's entire work. The improvement of technology and organization of the transportation process is combined with introduction of everything that is advanced in the country's and the world's shipbuilding and construction of fundamentally new types of specialized and highly efficient transport vessels. For in the age of scientific and technical revolution the well-known saying "To Stop, Means to Fall Behind" has a ring of special relevance.

A characteristic feature in the structure of our transport fleet in the 11th Five-Year Plan is the increase in the share of specialized dry cargo vessels.

In the "Basic Directions of Economic and Social Development of the USSR for 1981-85 and the Period up to 1990" it is stated: "To replenish the fleet with specialized containerships, hauling lighters, railway ferries, Arctic navigation vessels and icebreakers. To begin equipping transport vessels with atomic power units." This task is being fulfilled according to plan.

Today, our fleet has a powerful potential. By the end of the 11th Five-Year Plan, its overall deadweight will total 19.2 million t. There are 46 containerships, 59 timber and package carriers and 46 ro-ro vessels in operation. Ships with horizontal loading of the "Skul'ptor Konenkov" and "Kapitan Smirnov," which are designed for hauling containers, packages, trailers and wheel and crawler-mounted equipment, make it possible to reduce the time of cargo-handling operations to one-half - one-third.

The international lighter hauling system for hauling cargo by means of combined sea and river shipping is operating successfully. The operation of the hauling lighters "Julius Fucik" and "Tibor Samueli" has confirmed the correctness of the chosen direction in the development of the transportation process. Lighters loaded in ports of the Upper, Central and Lower Danube are delivered by river pusher tugs to river mouth ports and are then loaded on large-capacity vessels. Loading and unloading operations are fully automated and are conducted with means aboard vessels and without using port equipment. The time required to load lighters is 40-50 minutes.

During the current five-year plan, a lighter-container hauling transportation and technological system will begin functioning in the Far East and in the eastern Arctic sector on the basis of the hauling lighter "Aleksey Kosygin," which was built by shipbuilders in Kherson. A design has been developed of an atomic transport hauling lighter vessel of the LESH [not further identified] type, construction of which is in full swing.

Our country is the only one which operates an atomic icebreaker fleet. The appearance on the Arctic routes of the world's first icebreaker "Lenin" and the world's most powerful nuclear-propelled ships "Leonid Brezhnev" and "Sibir'" has produced a distinctive revolution in Arctic navigation. More cargo is transported in a year via the Northern Sea Route alone than was hauled by the entire maritime transport during the first year of operations of the Soviet merchant marine [Sovtorgflot].

More attention is devoted in the 11th Five-Year Plan to further development of the fleet which is designed for operations under difficult Arctic conditions. The pride of the Soviet fleet are the specialized icebreaker-transport vessels of special purpose design of the "Noril'sk" type for year-round navigation in the western sector of the Arctic. The multipurpose vessels of this series with a deadweight of 20,000 t are able to move independently without the help of icebreakers in 1-meter thick ice and operate under a temperature of 50 degrees below zero. They successfully combine in themselves the design features of a containership, a ro-ro vessel and a bulk carrier.

Special attention is devoted to creating comfortable living conditions and social development of vessel crews. Single-berth cabins with air conditioning and sanitary units, recreation rooms, lounges, a library, facilities for amateur pastime, a spacious sports hall that is equipped with everything necessary down to a boxing ring, an enclosed heated pool, a sauna and a solarium--a maximum of concern was manifested here for the health of seamen and the microclimate of a collective which works under difficult conditions in the Arctic.

The qualitative changes of the fleet in the current five-year plan should be noted. Its design and construction are implemented with consideration of all latest achievements in science and technology. The use of new materials in shipbuilding and extensive use of the system of automation and mechanization of production processes ensure safe navigation and safety of cargo, reduce the expenditure of fuel and power resources, facilitate the labor of seamen and raise productivity.

Automation is being introduced on an increasingly broader scale in the sphere of ship handling, navigation and conduct of cargo-handling operations. Transport vessels are equipped with the Briz automated complex, which was designed by Soviet specialists for solving the basic ship handling tasks.

Vessels of the new replenishment are built without fail by taking into account the requirements of the international convention on prevention of sea pollution with oil. An example is the "ecologically clean" tanker "Pobeda," which opened a new series of sixty thousanders. More than R30 million were allocated in the current five-year plan for the acquisition of nature protection equipment alone for our vessels.

One of the most important strategic tasks facing today's and tomorrow's fleet is raising the degree of its economy. Our vessels use millions of tons of fuel annually. If one takes into account the prices for oil on the world market, then it would not be difficult to imagine what it costs. Meanwhile, the reduction of fuel expenditure by only 1 percent in maritime transportation can yield an annual saving of more than 70,000 t of fuel. The way to this is by changing to more economical propulsion units and more cheaper grades of fuel and by improving the operation of the fleet.

Our maritime merchant fleet has changed beyond recognition in 60 years and has been transformed into one of the leading sectors of the national economy. Today, where at one time the first vessels under a red flag were overcoming the hatred of our enemies while making their way in the world, there are regular sea routes. During the past 30 years alone, the number of countries with which the Soviet Union maintains maritime trade relations, has tripled. Today, vessels flying the flag of our motherland call at more than 1,200 ports in 124 countries.

By ensuring durable trade and economic relations between states, the Soviet merchant fleet is confirming in deed the program of peace outlined by our party.

MARITIME AND RIVER FLEETS

CHIEF REVIEWS FAR EAST SHIPPING COMPANY ACHIEVEMENTS

Moscow MORSKOY FLOT in Russian No 7 Jul 84 pp 20-23

[Article by Yu. Vol'mer, chief of the Far East Shipping Line: "In the Far Eastern Meridians"]

[Excerpts] On the eve of the year 1974 the first timber wharf in the port of Vostochnyy was put into service. Today there are five specialized complexes on the shores of Vrangeli Bay - the timber, woodchips, coal and two container wharves. In service here is a unified electronic container monitoring system. In Nakhodka Bay ship traffic is controlled with the aid of a uniquely equipped electronic pilot station.

The Slavianka ship-repair yard is a little over ten years old, but the enterprise, by now well known in our industry, has over a thousand repaired ships to its credit, many of which previously underwent repairs abroad. Under construction at Slavianka today is a lighter-building complex - a plant in a plant.

Over the past ten years the composition of our fleet has likewise undergone a change, with overall freight-carrying capacity increasing by 14 percent. In the tenth and eleventh five-year plan periods the company's fleet was replenished with new specialized vessels: packet and container ships, lumber carriers and bulkers, modern icebreakers, Arctic transport vessels of the "Noril'sk" class capable of functioning autonomously in the most difficult ice.

On the eve of 1984 the Soviet flag was raised on the first Soviet-built lighter carrier, the 40 thousand ton "Aleksey Kosygin". With the arrival of this vessel in Vladivostok, now its home port, the company will embark on the practical introduction in the Far East of the first lighter-carrying system, a goal listed in the materials of the 26th Congress of the CPSU.

The addition to the fleet of ships of the "Noril'sk" class will permit year-round navigation to the ports of Eastern Kamchatka, prolong the Arctic navigation season, allow a more determined approach to the question of containerizing cargoes and changing the entire system of their delivery, and, finally, enable dozens of ships to be shifted to other jobs. The containerization of cargoes and their transportation by "Noril'sk" class vessels will realize

the possibility of making earlier deliveries to Pevek of freight destined for the port of Zelenyy Mys and the river ports of the Kolyma with its subsequent transshipment directly to the delta of this Siberian river.

Analyzing operations in the Arctic, we have come to the conclusion that cargo haulage to these regions should be entrusted to one shipping company. This, by the way, would facilitate the specialization of its fleet.

As in previous years, much attention is focussed on cargo deliveries to Magadan oblast. Not too long ago shipping out 5-6 thousand tons of freight daily from the port of Magadan seemed almost fantastic, but on several occasions in December 1983 they achieved and even topped the figure of 9 thousand tons, though 6 thousand comprised hard-to-handle general cargoes. For that figure to become the norm, several problems have to be resolved, chief among which remain: better work organization in automobile transport, construction of modern transshipment and accumulation bases, their provision with transloading mechanisms capable of processing packet cargoes and large international-standard containers. A reduction in the idle time of our and the Sakhalin companies' ships alone would make the annual saving of 2-3 million rubles a reality.

The containerization and packeting of cargoes remain as serious problems in the transportation process (this is particularly true with regard to freight going to the Arctic, Chukotka and Magadan oblast), even though over the past ten years the volume of container shipments in cabotage and foreign-trade haulage by our company doubled; for the Ministry of the Maritime Fleet as a whole they make up 40 percent of all cargoes carried. However, during the last navigation to areas of the Far North 63 percent of all containerable cargoes were shipped in bulk.

Before the beginning of the previous Arctic navigation season our company's representatives inspected a number of enterprises in Novosibirsk, Kulunda, Irkutsk, Angarsk and other cities. An analysis of their findings revealed that enterprises of the RSFSR Ministries of Procurement, the Food Industry, the Meat and Dairy Industry pay scant attention to the further development of these progressive forms of haulage, and that this is mainly due to the fact that some manufacturers are not handed down any plans for shipping out their products in packets and containers and therefore have no economic interest in the matter. A negative influence is exerted by Gosnab which every year manages to get relevant decrees temporarily repealed.

Last year prior to the onset of the Arctic and Chukotka navigation period consignees in the upper reaches of the Anadyr river vehemently objected to receiving cargoes in packets and containers. We went through with the operation at our own risk anyway, and

today these same consignees are our allies who insist that all freight without exception be delivered to them in containers only.

We focus a great deal of attention on the operation of our international lines, some of which were established in the past decade, and especially on the work of the Transsiberian Container line which in 1983 alone transported 132 thousand containers in transit and over 9 thousand with import-export cargoes. Today we plan to reduce the time needed to carry containers over the entire line to 25 days, which is 5-7 days less than foreign companies take to deliver them by sea. This should attract more cargoes and, consequently, increase the line's efficiency. We have the necessary material base and, more importantly, the cadres to ensure the fulfillment of the complex tasks set before us by the Communist party.

Gripped by a creative upsurge, our collective is working hard to meet the target figures of the eleventh five-year plan. The plans and socialist obligations of all three years have been successfully fulfilled. The annual plan for the third of the five years for cabotage haulage was fulfilled by December 5. 222 thousand tons of freight were delivered above plan to the ports of Magadan oblast, Kamchatka, Chukotka and the Far North. Haulage of export-import cargoes and foodstuffs were on the level assigned.

The collective is faced with some very responsible tasks in 1984. The volume of shipments to the Arctic and Magadan oblast will grow. An effort will be made to increase our foreign currency earnings from haulage of cargoes belonging to the Ministry of Foreign Trade and foreign charterers, to enhance our hard currency revenues in general.

In our socialist obligations for 1984 we undertook to deliver an additional 60 thousand tons of national-economy cargoes to areas of the Far East and Far North, and to take in 300 thousand rubles of revenues above plan from foreign trade haulage.

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MARITIME AND RIVER FLEETS

CHIEF ON ACTIVITIES OF PRIMOR'YE SHIPPING COMPANY

Moscow VODNIY TRANSPORT in Russian 12 Jul 84 p 4

[Interview with Pavel Konstantinovich Chernysh, chief of the Primor'ye Shipping Company, at Nakhodka: "Emergence"; date not specified]

[Text] In October 1969 the Ministry of the Maritime Fleet adopted a decision to organize in the port of Nakhodka a tanker-fleet administration of the Far Eastern Maritime Shipping Company. In January 1972 it was converted into the Primor'ye Shipping Company--the fourth maritime transport enterprise in the Soviet Far East.

The tanker operators had to begin under difficult conditions. The shipping company did not have an adequate shoreline material-technical base at its disposal. It was lacking its own buildings and other structures. Services and departments were scattered throughout the city. The fleet consisted basically of obsolete tankers--39 transport units with a total cargo capacity of 224,700 tons.

Against this background the achievements with which this group celebrated the sector's anniversary are particularly outstanding and important. At the beginning of the interview with our correspondent the chief of the Primor'ye Shipping Company, Pavel Konstantinovich Chernysh, cited the following facts and figures: according to the results of the first three years of the plan for cabotage and freight hauls abroad have been fulfilled ahead of schedule. An additional 157,000 tons of petroleum products were hauled, and 9 million rubles of above-plan profits were obtained. The indicators for the current year are also gratifying. The group has successfully coped with the tasks assigned for the first six months, having overlapped its assignment by 28,900 tons and obtained almost 700,000 rubles of additional profits.

Time has proved the feasibility of merging the region's entire tanker fleet. P. K. CHERNYSH talks below about the ways in which this young shipping company has emerged:

The shipping company began to develop rapidly. Supplementing the fleet with new tankers, built on the Soviet Union's orders at the shipbuilding slips of Bulgaria, Poland, and Finland, allowed us to achieve a high degree of intensity in cargo operations. During the years of the 10th Five-Year Plan, for example, we obtained 16 ships of the Drogobych, Internatsional, and Samotlor types with a total deadweight of 180,000 tons. In 1971, on the basis of a floating dry dock, a BTO [base for technical servicing of the fleet] was set up. This has played a large role in solving the problems of maintaining the transport fleet in operating condition and extending its period of use. In 1974 a commercial maritime tanker port was set up in Novitskiy Bay; it is subordinate to the shipping company.

[Question] As the fleet has been supplemented and renovated, the sphere of this shipping company's activity has also expanded. During the years of the 10th Five-Year Plan alone the growth of cabotage hauls amounted to 3 million tons. And during this same period there was an increase by a factor of 1.6 in the revenues derived from operations involving trips abroad. Does this mean that there have been increases in hauling export goods and cargoes of foreign charters, and has the products list of cargoes being hauled also expanded?

[Answer] Certainly. Moreover, the structure of the hauls abroad has changed from year to year, although the trend towards increased volume has remained steady. If, at the beginning of our activity, we carried out modest-sized hauls of diesel fuel to Japan by tankers of the Baskunchak type and fuel to Vietnam by ships of the Aksay type, today the fleet of the Primor'ye Shipping Company plows the seas and oceans of the whole world.

Begun in 1971, the one-time hauls of animal fat from Australia have gradually developed on the basis of annual contracts with foreign firms. We have gained a reputation as a conscientious, "solid" hauler. Thanks to the skill of our seamen, a contract was concluded for sequential trips from Australia and New Zealand to China and Japan. Gradually the sphere of activity has expanded. Now we haul fat to Bangladesh, Thailand, Singapore, East Africa, India, and the island of Mauritius. Thanks to the addition of new ships of the Samotlor type--with a high degree of automation, double bottoms, painted tankers, with individuated loading systems--we have developed hauls of vegetable oils and molasses from the ports of Malaysia, Bangkok, the Philippines, and Canada to the continent. It is not by chance that I am speaking in such detail about our ties with foreign charters. This is a vivid example of the fact that amid the circumstances of a worsening international tension there is an alternative to the hegemonistic ambitions of certain imperialist powers. What we are talking about is expanding business cooperation, trade and economic ties, and good-neighborly relations. It is precisely such threads which tie our country and our shipping company to the Republic of Vietnam.

[Question] Everyone, of course, remembers what sacrificial deeds were accomplished by our seamen during the years of the U.S. aggression against the struggling Vietnam....

[Answer] Yes, a little country was fighting for its independence with colossal courage. From the very first days of the imperialist aggression a "bridge of friendship" was established and operated continuously between the ports of the

Primor'ye [Maritime] Territory and Vietnam. Proceeding in an uninterrupted flow over this bridge were the most diverse cargoes--ranging from products to fuel. For successfully carrying out its assigned tasks with respect to delivering national-economic cargoes to the DRV and manifesting courage and heroism in doing so, the crew of the tanker Ambarchik, which completed 26 fiery trips, was awarded the Order of People's Friendship. More than 100 seamen and workers at the shoreline organizations of the PMP [Primor'ye Shipping Company] received state awards. Awards were granted by the DRV [Democratic Republic of Vietnam] to 110 seamen. Senior mechanic S. G. Pirogov became a Hero of Socialist Labor. This is only one of many pages in the history of our enterprise. But what a bright one it is!

[Question] Let's talk, in particular, about prospects for the future. Taking into account the attention which the party and the government are according to the development of the Far East and the economics of the region, they present wide scopes....

[Answer] That is certainly true. Suffice it to mention the following example. More than six years ago a petroleum-transshipment transport terminal was set up in Nakhodka; its participants are the Primor'ye Shipping Company, the Primor'ye Administration of Goskomnefteprodukt [State Committee for the Supply of Petroleum Products], and the Vladivostok Branch of the Far Eastern Railroad. During the 10th Five-Year Plan alone the smoothly coordinated work of the participants in the tanker transport terminal allowed us to increase the shipments of petroleum products by sea by 21.3 percent. However, the principal achievement of these workers in closely allied fields lies in the improvement of the qualitative indicators of their work. There has been a constant growth of the fleet's operational productivity in cabotage, while idle times at the petroleum bases of Primor'ye have been reduced.

We are contributing and will continue to contribute large funds to the program bearing the provisional title "Ecology." What we are talking about is preventing the pollution of the sea by petroleum products and other harmful substances.

The fleet's transport capacity is constantly increasing. This has been facilitated by putting the achievements of science and technology into production. Thus, for example, re-equipping the main engine and boiler of the Baskunchak-type tankers for operating on heavy sorts of fuel has provided the shipping company with an annual economic effect of more than 130,000 rubles. This is certainly an achievement. But time is so fleeting and so compact these days that the Baskunchaks, even in their renovated form, have become obsolete, and it is high time that we talked about replacing them.

Our principal reserve lies in increasing the fleet's operational productivity. All efforts have been thrown into upgrading the effectiveness of the transport process. The year 1979 saw the opening up of linear sailing on schedule from the ports of the Primor'ye to Magadan. As a result, the idle times on this route have been reduced by 3.1 percent, while the per-trip savings amount to about 10,000 rubles. Furthermore, operating by a schedule makes it possible for us to more fully satisfy the growing needs of the Magadan Industrial Region for petroleum products with the least increment of tonnage.

[Question] But here too you are depending on workers in closely allied fields. Economists have recently been raising the question of speeding up the development of the petroleum-base economy of the Far Eastern oblasts, as well as increasing their through-put capacity.

[Answer] Of course, the volumes of the hauls have been growing, while the capacity of the pool and the engineering lines of the petroleum bases have not undergone any substantial modernization. And if we were to begin talking about problems, then I would divide them into the following two categories-- internal, which we are solving and will continue to solve on our own, and external, which are insoluble without the intervention of the Ministry of the Maritime Fleet, the Ministry of Railways, USSR Gosplan, and USSR Gossnab. The former, for example, include strengthening the discipline and upgrading the qualifications of the seamen, improving the selection, indoctrination, and deployment of personnel, the struggle for the safety and lack of accidents in sailing the sea.... The second category includes replacing and supplementing the fleet. This company is in great need of its own ship's repair facility, and the lack of its own construction base is also having an effect.

Nevertheless, we view the future with optimism. Glorious traditions have already taken shape in our young, growing enterprise; the backbone of our group has been formed, the indefatigable desire of people to work with a full yield.

THE PERIOD OF EMERGENCE. FOR THE PRIMOR'YE SHIPPING COMPANY IT HAS NOT YET COME TO AN END. BUT AS THE TANKER PORT HAS BECOME AN ORGANIC PART OF NAKHODKA'S INDUSTRIAL LANDSCAPE, SO THIS ENTERPRISE HAS BECOME AN ORGANIC, COMPONENT PART OF THE PRIMOR'YE [MARITIME] KRAY AND THE SECTOR. A RELIABLE PART, IMPORTANT AND FIRM.

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MARITIME AND RIVER FLEETS

CHIEF ON WORK OF GEORGIAN SHIPPING COMPANY

Moscow VODNYY TRANSPORT in Russian 14 Jul 84 p 2

[Report on interview with Dzhemal Konstantinovich Chigvariya, chief of the Georgian Maritime Shipping Company, by VODNYY TRANSPORT correspondent D. Romanov: "The Ascent"]

[Excerpts] [Question] Dzhemal Konstantinovich, the Georgian Shipping Company still has a very brief history. Let us recall its basic milestones.

[Answer] Yes, our steamship company is one of the youngest in the country: 1967 is its year of birth. Thirteen ships were turned over to us at that time, which were engaged in coastal shipping in the Black Sea-Azov basin. Not that much time has passed since then--only 17 years, but much has been achieved by the collective of the steamship company. Our fleet now has nearly 50 ships with carrying capacity of more than 770,000 t, the steamship company actively participates in foreign trade shipping and tankers and bulk carriers of the Georgian Maritime Steamship Company [GMP] cast their anchor in 120 ports of 40 countries in the world. It must be said that businesslike and friendly assistance, which was rendered to us by our colleagues, has greatly contributed to the rapid development of our steamship company. Seamen and specialists came to us from Novorossiysk, Murmansk, Baku and the Far East. Renowned captain Anatoliy Alekseyevich Kacharava, whose name is linked to many successes of the Georgian Steamship Company, was the first chief of the steamship company.

[Question] So the Georgian Maritime Steamship Company has already achieved quite a lot, and therefore its work can be appraised, so to speak, without any allowances for youth. With what sort of indicators is the collective welcoming the anniversary of the maritime fleet?

[Answer] I must say that in the 11th Five-Year Plan our collective has been working in a stable manner and has been successfully coping with state plans and socialist pledges year after year. The data for the first 3 years of the five-year plan are as follows: the plan for coastal shipping was fulfilled by 102.3 percent, for shipping abroad by 103.7 percent, for cargo handling in ports by 106.2 percent and for profits by 104.7 percent. As you can see the indicators of our work are quite high. The seamen and port workers are working with a particular upsurge in this anniversary year. The tasks for increasing labor productivity and reducing transport production costs were already exceeded

during the first quarter. The Georgian Steamship Company has won a third place in the all-union socialist competition. We are not reducing our pace at present. The planned tasks for coastal shipping have been exceeded by tens of thousands of tons and for shipping abroad by several thousand tons. I must also say that the seamen and port workers, who have pledged to increase labor productivity in shipping by 1.1 percent and to reduce production costs by 0.5 percent, are firmly keeping their word. Thus, labor productivity was increased by 2.8 percent in 6 months and production costs were reduced by 2.5 percent. This is with regard to shipping. The handling cost per ton was reduced by 2.2 percent in ports. All of this has made it possible for us to assume the following increased socialist pledge: we have decided to fulfill the 7-month plan in all basic technical and economic indicators by 18 July.

[Question] How is the experience of the colleagues, the initiators of the all-union competition, being used in the work of seamen, dockers and ship repair workers of the Georgian Steamship Company? What new has been contributed by your collective to the development of the initiatives, which are supported everywhere?

[Answer] We are maintaining close businesslike relations with our colleagues from many steamship companies of the country. How can it be otherwise? Ships of the Novorossiysk Steamship Company call in Batumi, the Azov Steamship Company delivers cargo for the Ukraine and Transcaucasia via the Poti port and ships of the Danube Steamship Company also call here... Naturally, we share experiences, adopt everything best that was accumulated by others and describe our own innovations. This is also promoted by socialist competition with the collective of the Caspian Steamship Company.

Labor competition and the experience of the Black Sea motorship "Severdonetsk," the initiator of the all-union socialist competition, helped us last year to save 200,000 tonnage-days of operational time and 122 t of fuel and to haul 2,200 t of cargo above plan.

Batumi and Poti port workers were among the first in the country to support the initiative of the collective of the Leningrad transportation center, which was approved by the CPSU Central Committee. Introduction of the continuous planning system, improvement of labor organization forms and use of advanced equipment and technology has made it possible to increase the volume of cargo handling in ports and to achieve a reduction of transportation costs, the level of comprehensive mechanization here has reached 96 percent. In using the experience of Leningrad transportation workers, we did not act mechanically but only as it applied to our concrete conditions. In order to deepen and improve the cooperation of seamen, railwaymen and motorists, the Transcaucasian Regional Transportation Council was recently established in the republic, whose rights and influence extend over enterprises and organizations which interact in our transportation region.

[Question] What are the prospects for the development of the Georgian Steamship Company?

[Answer] Our steamship company is a tanker-bulk carrier by specialization. Taking the accumulated experience and transportation requirements into account, it will remain the same in the 12th Five-Year Plan and up to the year 2000. But, of course, it will grow and develop. This year, we have already received three vessels: "Vasiliy Solov'yev-Sedoy," "Yevgeniy Vakhtangov" and the tanker "Josip Broz Tito." By the end of the year, we will receive the bulk carrier "Sergo Zakariadze" and the tanker "Kapitan Anatoliy Kacharava." Next year, the steamship company will receive five tankers, and the carrying capacity of our fleet will exceed 870,000 t.

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MARITIME AND RIVER FLEETS

SAKHALIN SHIPPING COMPANY CHIEF ON ARCTIC PROBLEMS

Moscow VODNYI TRANSPORT in Russian 5 Jul 84 p 2

[Report on interview with Sergey Fedorovich Kamyshev, chief of the Sakhalin Maritime Shipping Company, by VODNYI TRANSPORT correspondent V. Antonenko: "Time Does Not Wait"]

[Text] Shipping companies of the Far East have actively expanded navigation in the country's northern latitudes. Unfortunately, in spite of relatively favorable navigation conditions, not everything is progressing well and according to plan. Why? S. F. Kamyshev, chief of the Sakhalin Maritime Shipping Company, responds to our correspondent V. Antonenko's questions.

[Question] Sergey Fedorovich, compared to 1981 the shipping company's fleet should increase the volume of shipment of cargo for the Arctic by 64 percent this year. How is this set task being solved?

[Answer] Sakhalin seamen must deliver considerable volumes of cargo to Pevek, Zelenyy Mys and Cape Schmidt. Taking into account the lessons of last year's severe navigation season in the Arctic, we have now replaced a part of the small-capacity and low-powered fleet with large Arctic vessels "Kemerovo" and "Okha" and four motorships of combined sea and river shipping and reinforced ice class of the "Pioner Moskvyy" type as well as with a leading vessel of the "Vitaliy D'yakov" series. Other motorships were technically prepared ahead of time. The necessary documentation was issued on schedule, and already in the beginning of June the "Kemerovo" began loading at the Vanino port and the "Okha" was right behind.

In short, seamen did not let a day slip by. The trouble is that the considered schedule was broken like a dry blade of grass owing to the swaying of consignors. Thus, the Vanino Department for supply of products of the Material and Technical Supply of Northwest Main Administration [Severovostokglavsnab] has failed to ensure the necessary pace of loading work: a deficit of equipment and personnel. Instead of 450 t plus 30 percent according to socialist pledges, only... 350 t are shipped during a light day. This consignor also has a shortage of containers.

The worst of it is that only one-third of all cargo destined for the Arctic is concentrated on the berths. Its range of products is not complete. For example, it turned out that all planned products destined for Pevek were not there, and it was necessary to conduct a composite loading of the "Kemerovo" in order to deliver at least something at the same time to other places--Cape Schmidt and Zelenyy Mys.

This situation exists until now.

The USSR Gossnab must adopt urgent measures so that its subdivisions in the Far East would ensure shipment of the entire volume of cargo to the Vanino port by 10 August. And to the maximum in containers. Only under such a condition the last transport can leave for the Arctic before 20 August. Otherwise, the repetition of last year's situation is not excluded.

[Question] A lion's share of general cargo shipped to Magadan Oblast falls upon the Sakhalin Shipping Company. Approximately more than 1 million t. Does this direction remain as before the most vulnerable link in the transportation conveyor?

[Answer] Despite the repeated decisions adopted by various levels of authority, the traffic capacity of this northern port remains insufficient. As a result, the gross intensity of fleet processing declines. For example, in 1980 this indicator amounted to 619 t per day, in 1981 to 562 t, in 1982 to 556 t and in 1983 only to 450 t. The shipping company had sustained considerable expenditures. In 1981, 797 vessel-days were lost, but last year the loss amounted to 1,087 vessel-days. Consider this, three motorships were put out of operation for the entire year. Let me add that during the past 3-year period the round trip of a vessel has increased from 20.8 days to 24.2 days. In 1980, our vessel stayed an average of 7.4 days in a port, but last year it was 10.4 days.

Speaking objectively, the statistics do not arouse optimism.

[Question] What, in your opinion, are the main reasons of unsatisfactory processing of the fleet with general cargo in the Magadan port?

[Answer] First of all, the coordination council of the local center has not been implementing proper supervision over the motor transport engaged in hauling cargo from the port. It is being done very slowly. As a result, the port resembles a huge warehouse that is stuffed with all kinds of goods to the brim. There is no place to unload and the vessels, which have to stay on a roadstead for a long time, are transformed into floating warehouses...

In the opinion of specialists, the situation can be corrected by a regional network of railways to the bases of basic major consignees. It does not exist so far. And even the plan will, apparently, be designated in the long range.

On the other hand, many bases in Magadan are small and are unable to handle containers. Processing of grain and fodder cargo, whose flow has been increasing year after year, is especially complicated.

Owing to all of these reasons, the shipping company has failed to deliver more than 100,000 t of cargo. I repeat, not due to its own fault. We have no joy at

all in the intense winter transportation work when a rush begins in the Magadan direction under the motto "At any price." A bitter experience has been accumulated. For example, the Tatar Strait covers up with a thick armor of ice and ships spend 2-3 days in making their way to the Vanino port, since the shipping company does not have modern icebreakers for guiding convoys. In this connection there is a need for assistance from our ministry in solving the question on renewing the icebreaker fleet. Promptness is required the more so because the Magadan "center" will not be "cut up" that soon.

[Question] Does what you stated mean that the shipping company is not coping with the navigation plan?

[Answer] Of course, not! Like all Soviet seamen, the seamen of Sakhalin are welcoming the 60th anniversary of the USSR maritime fleet with successful fulfillment of the semiannual plan. We are using reserves. Specifically, we have organized containerization of general cargo for some types of products. The fleet is operating efficiently in the Kuril Islands direction and as regards shipments abroad. A great volume of shipments was fulfilled to our Sakhalin Oblast. An exceptionally important role in this is being played by the Vanino-Kholmsk ferry crossing.

However, we must not close our eyes to problems. Time does not wait--national economic cargo is vitally needed by the Arctic and Magadan Oblast already now.

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MARITIME AND RIVER FLEETS

CENTRAL ASIAN SHIPPING COMPANY WORK ON SOUTHERN BORDER

Moscow VODNIY TRANSPORT in Russian 3 Jul 84 p 2

[Article by V. Martyshin, special correspondent: "A Mainline of Friendship"]

[Excerpts] The Amu Darya. With its life-giving moisture it nourishes the barren soil of the desert, marking it off by canals and irrigation ditches for a distance of many hundreds of kilometers from this river's own mouth. For a long time the river was Central Asia's sole transportation artery: its fleet played a determining role in the economic and cultural development of Tajikistan, Turkmenia, Kara-Kalpakia, Uzbekistan, and in strengthening the ties between them. Even to this very day in regions along the river which have not yet been reached by railroads it is of enormous importance for the national economy.

The length of operational service of the Central Asian Shipping Company, which has been awarded the Red Banner of Labor, is 61 years. Small craft used to sail along the Amu Darya even before the Revolution: the water routes of the Amu Darya and the Aral Sea were used at that time by the Amu Darya Naval Flotilla, while the Khiva Joint-Stock Company carried out cargo hauls.

A Region Transformed

And so here it is more than 60 years that the Amu Darya has already been serving the peoples of the fraternal republics. The Central Asian Shipping Company was organized within seven months after the formation of the USSR. And this was a completely legitimate consequence of that great historical event. The shipping company inherited from the old system 10 steamships, 15 non-self-powered barges, 4 auxiliary vessels, and several dozen kayuks--non-self-powered wooden boats. In 1928 the first group of ships built by the Volga and Kiev shipbuilders arrived on the Amu Darya. All this has now become a worthy part of history.

It is impossible to imagine the development of the Central Asian republics without the participation of the rivermen. And all we have to do is touch upon this or that change in the region of sands to immediately discover the participation of the rivermen in these changes. They rightfully consider themselves to be the "co-authors" of the construction of the Karakum Canal, as well as the

cities and settlements along its banks. The rivermen have participated most directly in developing underground storage facilities, constructing the Central Asia--Central Industrial Region Gas Pipeline, the Chardzhou--Kungrad Railroad, and they are now taking part in the construction of the Zeidsk Reservoir. This is merely a small part of the list of important construction projects in which the rivermen have taken part.

"Despite the development of other types of transport, the volume of cargo hauls has increased with each passing year," we were reminded by the chief of this shipping company, N. Bazarov. "At present water transport accounts for 4.5 million tons of cargo in Central Asia. If we compare this figure with the hauls in 1924, then we will see that their volume has increased by a factor of 345. Moreover, during the past decade they have doubled. By the end of the 12th Five-Year Plan an increase of yet another 1.5 million tons is planned. Last year the inhabitants of this region received the largest quantity of goods during the shipping company's 60-year history. Three years of the 5-year-plan have been finished ahead of schedule with regard to hauls, loading operations, and profits. About a million tons of above-plan cargoes have been hauled."

Master of the Waterway

"Anybody can say where the Amu Darya flowed yesterday, but nobody can predict where it will flow tomorrow." I heard this saying, which has come down to us from the distant past, from Mikhail Ivanovich Dudich, the captain of the dredge named "Dnoughlubitel'-2." And it was said not at all in order to justify his own lack of knowledge or his inexperience. It reflected a truth as ancient as the river's name, which is lost in the mists of obscurity, although one does hear the name "Dzheykhun," which, as translated from Arabic, means "raging."

The shipping company's losses are still extremely great. For this reason hauls by water here are more expensive than by railroad. It is also for this reason that the Central Asian rivermen consider reducing the costs of cargo delivery to be their top-priority obligation. In recent years quite a bit has been accomplished. For example, by means of combining jobs the number of personnel in the ships' crews has been cut in half. Dozens of barges are towed without skippers or their mates; more and more crews are carrying out medium-size repairs by their own efforts and are making the transition to the cost-accounting system. At the end of this five-year plan it is planned to switch all crews over to this progressive system, using checkbooks, which will place limits on the outlays of funds for wages, repairs, fuel, tackle, rigging, and materials. Upgrading of labor productivity is being facilitated by switching over to the linear form of navigation, while the direct variant is being used more and more frequently for processing ships.

From a distance the catamaran-type dredge looked like a bird which had spread its wings and was scarcely touching the water. Its bulkiness (this dredge has a capacity of 1200 cubic meters of sand per hour) became noticeable only upon coming right up to it. This heavy-duty power unit was rapidly clearing a 30-meter-wide corridor, throwing a compact stream of a sand-water mix beyond the waterway channel.

"During a few hours tonight the waterway channel along which the ferries sail has shifted 500 meters higher up the river," M. Dudich told us. "This was

reported to us by Aman Kurbanov, the buoy-keeper who monitors this section. And we go to work right away. Without any doubt the ferry will start on schedule."

...The work was successful, and the dredge moved forward rapidly. And the ferry sounded its whistle signaling departure right on time. The dredge moved to the side and let it pass....

And at this point one had to think a bit: yes, indeed, nobody knows where the river will flow tomorrow, but right here and now it was not the master of the waterway....

We Are Internationalists

The river arrives at Termez in deep water, before having distributed out through canals the water which it has gathered on the mountain ranges of the Hindu-Kush, the Pamir, and the Altay. Their proximity makes the river flow in a stormy, precipitous fashion. Here the river is also the border between the USSR and Afghanistan. And, of course, the greatest volume of import-export hauls arrives at this port. The economic ties between the two friendly countries have been expanding year after year; the affirmation of this is the growing volume of foreign-trade goods proceeding along the Amu Darya, and, in particular, through the port of Termez.

"Among the export goods there is a predominance of petroleum products, equipment, chemical fertilizers, timber, wheat, industrial goods and foodstuffs, wheeled equipment, motor vehicles, machine tools, and cement," we were told by the port chief, V. Chenchik. "From Afghanistan the following items proceed through this port to many of the world's countries: dried fruits, karakul wool, cotton fiber, wool, untanned leather, rugs, oranges, pineapples, and flax seeds. During the last five-year plan alone the volume of these items processed in our port doubled."

The group of this shipping company has done a great deal of work to consolidate the gains made by the April Revolution in the Democratic Republic of Afghanistan. Until recent times only one line was operating on the border area of the Amu Darya between the port of Termez and the Afghan port of Khayraton. And in order to ensure the sharply increased operational rhythm on this line, the shipping company sent additional people to this southernmost port. Specialists were sent to the Afghan ports of Khayraton and Shirkhan to organize the cargo transshipment operations and to instruct the Afghan port workers directly at their work places; aid was also rendered in the form of cargo-handling equipment.

Termez is a modern port, well-equipped with the latest equipment, up to date with the leading enterprises in the ministry. We had occasion to see how literally in less than an hour the loading of motor vehicles onto vehicle ferries was carried out here. Along two parallel ramps constructed by the port workers Zhigulis drove by their own power on the vehicle ferries. In the port's western section containers were being very quickly loaded onto the container-carrier areas. And alongside the Komsomol Youth Brigade of A. Grishchenko was processing items in packages. This group in the shipping company is the initiator of the slogan "Fulfill the Tasks of the Five-Year Plan in Three and One-Half Years." The brigade is keeping its word.

...The diesel ship "Tashkent" had just returned from the port of Khayraton. The dockworker-machinery operators immediately set to work unloading cotton, while we went on board the ship.

"We were cordially greeted by our Afghan friends in their ports," stated the captain of this leading crew, D. Bazarov, who is a Cavalier of the Order of Lenin and has won the Red Banner of Labor. "They have been frequent guests on our ship. And here on the last trip we visited the diesel ship used for agitation and propaganda purposes "Khamza," which is now operating in Khayraton; and it was there that we met with Afghan workers. We told them about our country, showed them a motion picture about V. I. Lenin with the soundtrack in Farsi. Untiring labor is the very best affirmation of our internationalist feelings toward the fraternal people of Afghanistan. On more than one occasion we heard complimentary remarks by Afghans about our specialists working in their ports-- M. Suzdol'tsev, A. Aymurzayev, A. Urazov, S. Mamedov, and many, many others. Uzbeks, Tajiks, Turkmens, Kara-Kalpaks, and Russians are traveling on ships along the Amu Darya into the fraternal republic. Many of them recall how our Central Asia was a few decades ago and see how it is today. Perhaps it is for this reason that they are responding so willingly to the request for aid by our Afghan brothers...."

2384

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MARITIME AND RIVER FLEETS

DEVELOPMENT, ACTIVITIES OF BALTIC SHIPPING COMPANY

Moscow VODNYI TRANSPORT in Russian 14 Jul 84 pp 1-2

[Article by L. Lavrova, O. Rogozin, V. Yelisseyev and L. Yushkevich: "The Baltic Horizons"]

[Excerpts] A graceful building of glass and concrete rises over the Mezhevoy Channel in Leningrad, near the entrance to the maritime commercial port. Written in gold letters on its pediment are the words: Baltic Order of October Revolution Maritime Shipping Company (Baltic Shipping Company).

Management--Means Foresight

The Baltic Maritime Shipping Company is a large transport enterprise of the country whose production capital exceeds R1.5 billion. Its foundation is the transport fleet, which consists of dry cargo vessels, timber carriers, containerships, ro-ro vessels, special purpose "ro-flow" and other specialized ships. The availability in the shipping company's fleet of medium-capacity and large-capacity containerships and ro-ro vessels makes it possible to transport according to progressive technology--in packages and containers up to 60 percent of the overall volume of export and import cargo between the ports of the USSR and foreign countries. The shipments in the Baltic and on West European routes are completely containerized. The shipping company serves with its own fleet the Transsiberian container route, which links the ports of European countries with Japan, the Philippines and Malaysia and the Transcaucasus route between Europe, Iran and Afghanistan. During the past several years, the ships of the shipping company have delivered a large quantity of cargo for builders of main gas pipelines, which contributed to prefulfillment of important government tasks. Large diameter pipes, compressor stations, batteries of coke ovens and rectification columns were dispatched on the motorships of the shipping company to the mouths of Siberian rivers and handed over in a relay to rivermen ahead of the planned periods.

To manage a complex maritime economy well is not a simple task. The shipping company is constantly looking for ways to improve the management structure. The operational subdivisions--cost accounting operational groups of vessels [KhEGS]--have grown stronger and accumulated experience. There are six of them. In 1979, a new fleet operations administration was established here, under whose

jurisdiction are departments in charge of operational planning and fleet loading, a scheduling group and port service. This reorganization has made it possible to interact more closely and efficiently and to solve all questions of operational, personnel and coastal service of vessels. The fleet management as a whole has become more flexible, the turnover of documents has been put in order and the responsibility of associates of subdivisions for assigned sectors of work has been raised.

During the past several years, the management staff of the shipping company has been devoting much attention to planning in all its forms. To solve management tasks, an information and computer center was put into service, which as far back as in 1970 changed from solving individual tasks to creating an automated control system: the Baltic Maritime Shipping Company [BMP] was named as a leading organization and its information and computer center [IVTs] as a leading developer of the shipping company automated control system [ASU]. By 1981, 44 complexes of tasks were already being solved on the basis of the automated control system, which yielded an economic effect of R1.4 million. Almost all complexes of tasks being solved today are standard ones. The automated control system is equipped with third generation electronic computers. The main goal of the entire collective of the shipping company's automated control system is to provide maximum assistance to the management staff in accurately organizing work in accordance with the requirements of scientific and technical revolution.

Address of Leading Experience

During the 10th Five-Year Plan, on the initiative of seamen and port workers, active introduction of the system of correlated continuous planning of transportation center's (TU) work began in Leningrad. The volume of cargo transshipment in the port has increased 1.7-fold on the basis of this progressive system without any additional capital investments and increased number of workers. More than 90 percent of the increase in cargo turnover was ensured by raising labor productivity on the berths. The share of direct version in cargo handling has exceeded 73 percent and the volume of cargo handled by direct version has increased almost threefold. Leading labor methods have made it possible to reduce transshipment costs per ton of cargo, raise the intensiveness in processing of the fleet, reduce the car processing period and increase the average static load. A substantial shift has emerged in the search for a rational redistribution of cargo flows. Increasingly more river vessels are being called in to haul cargo which was delivered to the port by sea, and the share of motor transport has increased fivefold. All of this has released tens of thousands of railcars and accelerated the delivery of cargo.

The experience of Leningrad workers, which was approved in the resolution of the CPSU Central Committee "On Labor Cooperation of the Collectives of Seamen, Railwaymen, Motorists and Rivermen at the Leningrad Transportation Center" of 21 March 1978, was widely disseminated in the country.

An appreciable economic benefit from introduction of the system of continuous plan-schedule of a transportation center [NPGRTU] was obtained by transportation workers of Kaliningrad and Vyborg--ports that are a part of the Baltic

Maritime Shipping Company. The connection of this harbor's operations to the Baltic-Cuba-Baltic conveyer appears to be especially important, inasmuch as the delivery of cargo to Cuba and back amounts to nearly one-third of the shipping company's cargo shipments. More and more Baltic vessels call in Kaliningrad. During the 10th Five-Year Plan, port workers of the basic enterprise of the country's westernmost transportation center processed altogether more than 1 million t of cargo above the program. Kaliningrad workers are coping successfully with tasks and increased pledges of the 11th Five-Year Plan.

The achievements of transportation workers in the unified center are evident.

Specialists of the Baltic Maritime Shipping Company and scientific maritime transport institutions have prepared a foundation for further improvement of transportation and transshipment work. During the past several years, many engineering and organizational decisions were implemented as regards increasing traffic capacity of ports and stations, raising the use of transshipment complexes and means of transportation, accelerating the turnover of documents and in the final analysis satisfying the requirements of the national economy in the delivery of cargo more fully and qualitatively.

The experience of the past few years has shown that further search must be aimed not only at improving planning and management within one transportation center, but on a much broader scale. The necessity of tying in the new system with other railroads and with senders and receivers of cargo in the vast expanses of our motherland is clearly visible today.

Leningrad port workers have already taken the first step in this direction. Owing to the fact that 10 percent of the exported goods here are made at the Volga Motor Vehicle Plant in Togliatti, they have worked out clear-cut contacts with this enterprise. The information bridge between the supplier plant and the port, the data on shipment of motor vehicles, their number, the delivery periods and so forth are included in the port's plan-schedule. Attempts are being made to establish similar relations with all interested sides, which are not a part of the Leningrad Transportation Center but still influence its work in one way or another.

Experienced seamen, railwaymen, rivermen and motorists cooperate in a friendly, coordinated manner. At the same time, the experience and the search by collectives of enterprises of the Leningrad Transportation Center testify that it is still necessary to solve many important questions of interaction of related enterprises. This will undoubtedly promote further improvement in the system of correlated continuous planning of work of related transport enterprises and its efficient functioning.

Ships Working on Schedule

The improvement of route navigation occupies a leading place in the struggle for efficient and quality shipment of national economic cargo, rapid turnover rate of ships and maximum reduction of their layover under cargo-handling operations.

During the 9th and 10th Five-Year Plans, the Baltic Maritime Shipping Company has established an extensive network of ocean routes. As a result of the collective's persistent work, shifting of the basic part of cargo to specialized tonnage

was underway. Shipment in containers continued to develop. The process of "rejuvenation" of the Baltic Maritime Shipping Company's fleet is progressing according to plan, but not only through addition of newly built specialized vessels, but also through modernization of the old ones. Having the use of a large specialized fleet, the shipping company is exerting efforts so as to use it rationally. Therefore, the main attention here is devoted to improving the route navigation. Based on past experience, 10 routes are regarded as having good prospects. Among them are Baltaustralia, Baltamerica, Bestaline, Baltorent, Baltkapas and others.

The direction of the new route are continental ports--Jidda--ports of Southeast Asia are currently being served by seven vessels of the "Khudozhnik Sar'yan" type (without calling in Leningrad, via the so-called great circle during the change of crews in the port of Hamburg). Baltic seamen had to do everything from the beginning and win the trust of shippers.

The Baltcanada is a new and interesting route. During optional calls by the fleet a distinctively steady direction Leningrad-Cuba-continent-Leningrad was formed...

Baltic seamen are fully resolved to develop and improve the operations of route navigation.

9817
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PORTS AND TRANSSHIPMENT CENTERS

DEPUTY MINISTER TRUNOV ON SOVIET PORT DEVELOPMENT

Moscow MORSKOY FLOT in Russian No 6, Jun 84 pp 2-6

[Article by B. Trunov, deputy minister of the Maritime Fleet: "The Sector's Ports: Yesterday, Today, Tomorrow"]

[Text] Realizing the decisions of the 26th CPSU Congress and subsequent CPSU Central Committee Plenums, the workers of the maritime fleet have successfully fulfilled the plans for 1983 and for the first three years of the 11th Five-Year Plan.

The sailors and longshoremen have ensured a continuous flow of a wide range of food shipments. They have delivered, ahead of schedule, pipe and equipment for the Urengoy-Pomary-Uzhgorod Main Pipeline. Despite difficult weather conditions in 1983, they have delivered freight to the Far North and the Far East.

The USA and other NATO countries are at fault for the more difficult foreign operating conditions experienced by the Soviet commercial fleet. This was reflected not only in vessel, but also in port operations.

At the same time, the tremendous amount of work done during the Soviet years to develop the fleet and the maritime ports has made it possible today to solve the large-scale problems of meeting the economy's transport needs.

Czarist Russia left the Soviet republic only poorly developed ports, where hard physical labor predominated.

During the first five-year plans, much port renovation and development were done. Reinforced-concrete deepwater piers, quays and wide breakwaters were built. The main ports were considerably deepened.

The number of port cranes increased 3.2-fold from 1928 to 1940, including a 4-fold increase in gantry and semi-gantry cranes. Domestic industry has begun producing the freight-handling equipment that the ports need, including gantry cranes. Large bridge cranes have been installed in the Zhdanov and Vladivostok ports. These 12.5-ton cranes have an 80-meter span and a cantilever boom that can cover the entire ship.

By equipping the ports with freight-handling equipment and by improving freight operations technology, labor productivity was increased and freight handling accelerated. The amount of work done per port worker with mechanized freight handling increased 2.3-fold between 1933 and 1940.

With the beginning of World War II, maritime transport was completely shifted over to meeting the needs of the front and the home front.

The workers at Odessa, Novorossiysk, Kerch, Sevastopol, Murmansk, Arkhangelsk, Tuapse, Baku, Krasnovodsk, Vladivostok and other ports made glorious contributions to the history of World War II.

The Odessa, Novorossiysk, Mariupol, Kherson and Nikolayev ports, as well as the Baltic ports and many others which were temporarily occupied during the war, were barbarically destroyed by the retreating Fascist units. The berths, warehouses, refrigerated warehouses, railroad tracks and freight-handling equipment were destroyed. Ships had a difficult time reaching the port areas and berth because of sunken ships and mines.

During 1944 and 1945, the waters of the Baltic and Black-Sea ports were cleared. Some of their docks and railroad spurs were rebuilt. Service and auxiliary vessels were repaired and the surviving freight-handling equipment was installed. Port restoration and reconstruction took place simultaneously. Particular attention was given to increasing the amount of freight-handling equipment, in order to quickly increase port capacity.

Although 78% of the freight-handling equipment was destroyed during the war, by 1 January 1946 the total number of gantry cranes in ports was 1.8 times greater than before the war. The number of other jib cranes was 4.4 times greater, while there were 3 times more motorized and electric cars. Despite great losses, the number of floating cranes equalled the pre-war level.

By 1950, the volume of freight handling had grown by 98 percent compared to 1946, while storage area increased by 24 percent. The output per worker doubled.

The ports began to better meet the needs of the national economy. However, their slow development affected fleet operations for a long time, causing ships to be delayed for lengthy periods in port. This affected the sector's output.

Significant reconstruction and expansion work was done at the Vladivostok and Vanino ports, at ports on Sakhalin and Kamchatka, in Pevek and at Dikson. New ports were built in Nakhodka and Magadan.

New berths were built and old ones rebuilt in Black-Sea, Azov-Sea, Baltic and northern ports. The Shirokiy Pier at Novorossiysk was equipped with freight-handling equipment and put into operation. The depth at the piers was 9-11.5 meters. The first continuous loading system, including covered storage, for apatite concentrates was put into operation in Murmansk.

Special attention was given to improving freight-handling technology, reducing its labor intensity and lessening the burdens of port workers. By 1955, the number of cranes was almost five times greater than the pre-war level.

From 1959 to 1965, over 3,000 specialized machines and 2,000 fork lifts were supplied to the ports. The number of gantry cranes increased 1.8-fold.

The successful use of the new fleet was possible only in conjunction with the corresponding development of the shore base, in particular the maritime ports. This was done by implementing new, innovative freight-handling equipment and technology. The growth of the bulk-carrier fleet has necessitated the creation of specialized high-production freight-handling systems. These systems incorporate car dumpers and conveyors to move freight to storage areas and to ships. Such systems were built in Zhdanov (for coal), in Kandalaksha and Nikolayev (for ores) and in Odessa (for unloading sugar).

Container terminals were built at Odessa, Leningrad, Ilichevsk, Riga and other ports. Each of these terminals can handle 4-5 times more freight per year with fewer workers.

At the same time, it became necessary to build new ports and develop new freight areas with specialized freight-handling systems, deep-water berths and large harbors.

A typical example of such a new port is the Vostochnyy Port on Vrangeli Bay in the Far East. The port, which has a large harbor, contains the following modern specialized freight-handling systems: an industrial wood-chip system that can handle 30,000-40,000-ton wood-chip carriers; a container system that can handle vessels carrying up to 2,500 containers and a coal system that can handle 120,000- to 150,000-ton vessels.

The Yuzhnyy Port was built on the Black Sea. The Leningrad, Ilichevsk, Vladivostok, Magadan, Murmansk, Arkhangel'sk and other ports are being renovated and expanded.

After the introduction of railroad ferry service in the Caspian Basin and in the Far East, the first international maritime ferry service was created between Ilichevsk and Varna. All of this caused a basic change in port operations.

At all stages of socialist construction, special attention was given and is being given to developing socialist competition to fulfill and overfulfill production plans with minimum labor, material and financial expenditures. The initiative of Aleksey Stakhanov was widely accepted in maritime ports. The first to follow his lead was A. I. Petrash, a longshoreman brigade leader at the Odessa Port. He demonstrated high-production labor and had an enormous influence on the growth of the Stakhanovite movement in maritime transport.

The A. I. Petrash Prize is now given to the best longshoremen-machine operator brigade leaders--those who have made outstanding labor achievements.

Fleet progress has resulted in port innovations. Before 1956, port freight-handling operations were done by small brigades of longshoremen doing manual labor and by machine operators with very narrowly defined duties (crane operators and port transport drivers). They spent about 30 percent of their time handling freight.

There were different norms and pay scales for longshoremen and machine operators, a situation that did not facilitate speedy freight handling.

An effective means of increasing worker productivity and speeding freight handling was the complex brigade, created in 1960. These brigades contained longshoremen who could handle the entire range of port operations.

As the national economy's transport needs grew, better cooperation between different forms of transport, within the framework of the United Transport System, became all the more important. The largest and most important reserves for improving the performance of the different parts of the transport network are hidden in the transfer areas.

An important step in improving freight operations was the creation of consolidated complex brigades (UKB). In 1974, the CPSU Central Committee approved the operating method of the UKB headed by A. Baranovskiy at the Ilichevsk Port. This UKB containing 36 workers replaced 4 normal brigades that totalled 48 workers. It achieved a 30 percent increase in labor productivity.

The success of UKB operations made it possible to switch to the cost-account consolidated complex brigade (KhUKB). This was pioneered by G. Batunya, a brigade leader at the Korsakov Port. The KhUKB operates on the brigade contract method and provides complete vessel servicing within normative periods.

At present, 93.3 percent of the port workers engaged in freight and non-port operations belong to complex brigades, including 83.4 percent that belong to consolidated complex brigades.

The consolidated complex brigades that have switched to cost accounting are especially effective. Also highly effective are those operating on the brigade contract method with a single job authorization. Their wages are based on end results, and the labor participation coefficient is used to distribute wages. One hundred and ninety longshoremen-machine operator brigades operate on either the cost accounting or brigade contract method. These account for 40 percent of all port workers engaged in freight and non-port operations. On the job, the brigades realize the powers given them by the USSR Law "On Labor Collectives and Increasing Their Role in the Management of Enterprises, Institutions and Organizations."

The government highly values the outstanding labor achievements of consolidated complex brigade workers. The following UKB brigade leaders became Heroes of Socialist Labor: A. Baranovskiy, Ilichevsk Port; G. Suslov, Novorossiysk Port and P. Romanov and I. Sysoyev, Leningrad Port. UKB leaders G. Batunya, Korsakov Port; N. Shantsev, Vanino Port; K. Gorniychenko, Novorossiysk Port and V. Dunayev of Vladivostok Port were awarded the USSR State Prize for outstanding achievements in labor.

The intense work done during the 1960's to implement the latest mathematical economic planning and management methods resulted in the optimum operations schedule for transport enterprises. The Leningrad and Odessa ports were the initiators in implementing the optimum schedule.

A number of things have permitted the optimization of the port-fleet system. They include the creation of an extensive network of computer centers, the implementation of a sector-wide automated control system and the development and use of scientifically based norms. This has all been based on a

completely new management tool: the Continuous Schedule of Fleet Operations (NGRF) and the Continuous Plan-Schedule of Port Operations (NPGRP).

The experiences of the Leningrad and Ilichevsk ports in using NPGRP and of the Black Sea, Baltic and several other shipping companies in using the NGRF have shown that continuous planning must be more widely implemented. All the activities of transportation centers must be switched over to this type of planning. The receiving and handling of maritime and river vessels, rail cars and trucks must be coordinated.

The Leningrad transport workers have embarked on this path. They have started cooperative work to create a continuous coordinated planning system for the operations of enterprises connected with the transportation center.

The Leningrad Transportation Center organized the operations of interlinked enterprises using the continuous plan-schedule of transportation center operations (NPGRTU). For this, they utilized the complex socialist competition method first organized by the Odessa transport workers.

In March 1978, the Leningrad method was approved by the CPSU Central Committee and recommended for general use. Transportation centers were consolidated as a transport management system. This system provides for the balanced use of the material and labor resources of the interlinked enterprises. Its aim is to speed freight shipments and reduce transport expenditures.

At present, 39 maritime ports are operating on NPGRTU; these ports provide about 90 percent of the total volume of freight operations. Of the 39, 22 have automated NPGRTU operations.

Direct contacts between ports and freight shippers and receivers have also become more common. For instance, the Leningrad Port has direct agreements with the Volga Automobile Plant and the Kama Truck Plant, with other suppliers waiting in the wings. The Odessa Port and the Azot Association in Cherkassy have directly organized the coordinated transport of chemical freight by truck and river fleet, with direct unloading from river to maritime vessels.

The Ilichevsk, Tallin, Izmail, Novorossiysk, Nikolayev, Zhdanov and other ports have direct agreements with a number of clients.

There is also transport coordination on a high level, that of the economic regions. This work is aimed at reducing transport delays, speeding freight shipments and efficiently distributing freight traffic between various forms of transport. The shipping companies, railroad administrations and other administrations are solving regional problems in Odessa, Leningrad, Riga, Zhdanov, Batumi and Vladivostok.

Much work is being done to improve the management structure of ports. Freight-handling systems are now the basic production units in large ports. The recommended management structure for group-two or group-three ports is a structure without definitive areas. A two- or three-unit structure is recommended for non-category or group-one ports.

The creation of local transportation center coordination councils and the Central Coordination Commission in Moscow has had a great effect on improving the interaction of ports with interlinking modes of transport.

The experience of these coordination councils has shown that problems of operations coordination in transportation centers can be solved without difficulty when the councils are monitored by party organs and when the management of interlinking enterprises are involved.

From 1977 to 1983, direct freight shipments from maritime ports increased 1.6-fold. In 1983, 500,000 more rail cars containing imported goods were shipped to receivers than in 1977. Due to a reduction in rail-car idle time in port, over 580,000 nominal rail cars were freed for use, including over 220,000 in 1983 alone.

The one-thousand and two-thousand movements (the acceptance by longshoremen and machine operators of the obligation to load 1,000 and 2,000 kg of freight above plan per rail car through better space utilization) have also made it possible to free up hundreds of thousands of rail cars.

In 1983, almost half of all imported freight was shipped on railroad routes. Rail shipments constituted 80 percent of all shipments in such transportation centers as Kandalaksha, Batumi, Izmail and Vostochnyy. They constituted over 70 percent at Novorossiysk and Nakhodka.

The savings gained between 1978 and 1983 from implementing the NPGRTU are estimated at 80 million rubles.

However, there are still some shortcomings in improving the cooperation of interlinking enterprises. In many cases, empty rail cars are delivered late or in insufficient numbers to load import freight at the ports. There are disruptions in the delivery of rail cars loaded with export goods. There are often delays in rail car handling by the ports. Ship arrival schedules and timetables are broken. The longshoremen are not always properly organized. Much time is spent filling out transport documents. Poor work quality is still a problem.

The elimination of these shortcomings will produce significant reserves in a number of areas. Vessel and rail car handling will be accelerated. The end-users will receive their shipments sooner. The most important task of the party--to increase labor productivity by a least one percent greater than the plan--will be fulfilled. The reduction in production costs will be reduced by 0.5 percent more than the plan.

In 1980, the sector's ports had 220 all-purpose and 16 specialized freight-handling systems for general cargoes. There were 109 all-purpose and 13 specialized systems for bulk freights and 29 systems for forest products. There were 43 all-purpose and 13 specialized grain-handling systems and 17 ferry systems. There will be more specialized systems by 1985. Already, the annual volume of export freight-handling operations totals 225,000 tons.

Many factors will further the multifaceted development of all sectors of the national economy, including the maritime fleet. The development of different regions of the country will play a part, as will the fulfillment of the Food and Energy programs. The growth of foreign trade and other important tasks in strengthening the economy and the national defense will undoubtedly contribute to this. This also means that the most important part of the maritime fleet--its ports--will be further developed.

The main direction of maritime port development is the creation of the necessary conditions for further sharp reductions in port time for ships and rolling stock. Another main direction is improving the efficiency of these interlinking modes of transport.

To accomplish this, port capacity must be increased. Labor expenditures for freight handling must be reduced. Port operations and the cooperation between maritime and interlinking forms of transport must be improved. The social-economic working and living conditions of port workers must be improved. All types of socialist competition, including international, must be developed and improved.

To solve these tasks, freight traffic in ports must be further concentrated. The capacity and specialization of freight-handling systems must be significantly increased by new equipment and renovation. Innovative freight-handling methods, including consolidated areas, must be used. Among other measures, new housing must be built.

The Novotalinnsk Port, presently under construction, will have specialized grain- and perishable goods-handling systems, as well as RO-RO and container service. A specialized system for RO-RO's and containers will be completed at the Riga Port in the Kundzinsala Rayon. Ferry service to the GDR will be started.

In the Black Sea-Azov Sea Basin, specialized systems will be renovated or built for containers at Ilichevsk and Zhdanov, for grain in Odessa and for coal and chemical cargoes at Yuzhnyy. A lighter-carrier base will be built at Ilichevsk. Ferry service between Ilichevsk and Varna will be developed further. On the Danube, a lighter-carrier base will be built at Ust-Dunaysk and bulk freight-handling systems at Reni.

The basic renovation and construction sites on the Caspian will be the ferry service between Baku and Krasnovodsk.

In the Far East Basin, the Vostochnyy Port will be further developed with the introduction of specialized container- and grain-handling systems. Among other things, perishable goods- and container-handling systems will be built at Magadan and Vanino.

Freight operations in the Far North are to be radically improved.

Scientific, project and design organizations must be more widely utilized to solve the problems of intensive port development. The role of port technical departments must be strengthened.

The fulfillment of these tasks will increase the capacity of the ports' dry-goods handling systems to 300 million tons per year.

The port collectives have greeted their professional holiday with new production successes. They are ready to do everything required of them to fulfill the 1984 plan and socialist obligations ahead of schedule. This will lay a solid foundation for the sector's successful fulfillment of the economic and social development plan of the 11th Five-Year Plan.

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PORTS AND TRANSSHIPMENT CENTERS

CHIEF STRESSES NEED FOR RO-RO HANDLING FACILITIES

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[Article by B. Grabovoy, chief, Ilichevsk Port: "RO-RO's at the Ilichevsk Port"]

[Text] Roll-On Roll-Off shipments have grown significantly in our country in recent years. Nearly all shipping companies use RO-RO's, while the Black Sea Shipping Company now has large-tonnage vessels of the "Kapitan Smirnov" class.

The rapid growth of the RO-RO fleet has put important tasks before the ports. They must develop modern, high-capacity handling systems. They must develop modern, high-capacity handling systems. They must quickly implement the most efficient technology and organization for transshipments and freight handling.

The following circumstances make this problem especially urgent, in our opinion.

First of all, small-tonnage RO-RO's were originally used primarily for transporting vehicular equipment. As medium- and especially large-tonnage RO-RO's were introduced, they started to be used more to transport general freight in different consolidated forms. These include containers and flats, trailers and semi-trailers, pallets and special platforms.

These arrangements make maximum use of the equipment and technological capabilities of these vessels. Most importantly, they meet the needs of foreign-trade and coastal shipments. They also greatly complicate freight-handling operations in port.

Secondly, RO-RO service differs from container service in that the former provides consolidated freight service not so much "door to door" as between corresponding ports. In other words, most of the work done to make and break consolidated shipments is done by the port, not by the shipper or receiver. The freight-handling system uses up to 10 different specialized covered and open storage areas to handle the complicated composite freight traffic.

Thirdly, the handling rate of RO-RO's depends, to a greater degree than for vertically loaded container ships, on the preparation and concentration in one place of the entire ship load by the time the vessel arrives. However, this hinders the port's technical capabilities. The construction of RO-RO port facilities is lagging behind the growing demands of the fleet.

The Ilichevsk Port has long handled modern RO-RO's. The first ones were special Japanese 9-deck automobile carriers that held 2,500 cars. These were followed by vessels of the "Akademik Tupolev" class and others. At present, the port handles RO-RO shipments on several international lines: Ilichevsk-SRV-Japan-Singapore-Middle East ports-Ilichevsk, Ilichevsk-Cuba and Ilichevsk-Near East ports.

The RO-RO's are handled in two special port facilities in the No. 5 and No. 2 freight areas. The former was built to handle automobile shipments. However, as shipments increased, it had to handle all types of self-propelled and non-self-propelled rolling equipment. The handling system was renovated in the shortest possible time using port personnel and funds. Highly efficient freight-handling technology was developed and implemented. The railroad freight area was equipped with double- and single-level ramps. It also features an adjustable ramp with an electric hoist to provide the maximum handling rate for special and all-purpose flatcars. The area for handling double-decker cars is equipped with galleries on both sides. This makes ladders and supports unnecessary. Working conditions are safer and more convenient for the longshoremen. Permanent hot- and cold-water piping runs to this area so that the motor-vehicle coolant systems can be filled. A railroad track was built and a crane was installed to unload equipment from open rail cars.

Modern inspection and protection systems, including a television system, are used in the automobile storage area. A shop for technical service, auxiliary assembly and minor repairs for export automobiles was built.

The berth is equipped to handle any size RO-RO vessel with any ramp system. However, one factor is most important in ensuring the successful operation of the system and quick vessel handling. There is a staging area near the berth which can handle two large RO-RO ship loads. This has made it possible from the beginning to load ships most efficiently by having the made-up ship loads on hand in a single area.

After the orders are received and before the vessel arrives, all necessary preparations are made. The ship load is brought from storage to the staging area and presented for State Export Goods Quality Inspection. Thus, before the vessel arrives, all or nearly all of the load is ready and concentrated near the ship ramps in the order in which it is to be loaded. This loading system has increased the ship-handling rate by 1.5-fold.

An analysis has shown that significant savings can be realized by reducing ship maintenance expenditures, despite the increase in intraport freight handling and some increase in port costs.

Next, this system of preliminary sorting of full ship loads was applied to other types of freight besides automobiles: containers, trailers, flats and semi-trailers. In all cases, there was a significant reduction in vessel layover time.

From this experience one can conclude that this method of vessel handling is an important condition for fulfilling the approved RO-RO handling norms. For

vertically loaded container vessels, it can reduce layover time for freight handling by 18-20 percent. However, much reserve storage space is needed to completely make up full ship loads. The technological design norms for ports do not yet provide for such an area, while it is practically nonexistent in operating port areas.

In addition, analysis has shown that intrastorage sorting is unprofitable for loading individual pieces of freight. This once again shows that such shipping practices must be minimized.

"Kapitan Smirnov"-class RO-RO's carry export goods in large containers, caterpillar equipment, equipment and metal on trailers, trucks and automobiles. They carry such import loads as large containers, equipment and package freight on trailers, and various boxed and bailed freight that is placed on the ship deck.

A ship with such a composite load can be handled only in the No. 2 freight facility at the container berths. There is no specialized RO-RO facility here, but there are excellent conditions for the development of one. Such a facility can and must be developed after coal and ore shipments are rerouted through Yuzhnyy Port and after a large container facility is built at the No. 1 area. The storage areas, loading areas and berths of the No. 2 area will be freed up, along with the motor-vehicle storage area and a number of other storage and loading areas. With relatively minor alterations, they can be transformed into a large RO-RO facility with a staging area that can handle and quickly service any size RO-RO with any combination of freight.

Production pressures forced us to organize RO-RO service in this area two years ago. We used our own resources to equip the facility. Asphalt was replaced with concrete. We provided the necessary equipment for the loading areas and introduced modern loading technology, following the recommendations of Soyuzmorniiprojekt [the State Scientific Research Institute of Maritime Port and Ship-Repair Yard Design] and the Black Sea and Baltic central project design bureaus. Particular attention was given to specialized storage areas and their precise interaction. The intensive utilization of the facility during renovation caused certain operational difficulties. In addition, the railroad's delay in removing containers of import and export shipments of vessels of the Black Sea Shipping Company caused serious problems.

The project design, construction and start-up of the container facility at berths Nos 1 and 2 must be accelerated in order to materially increase the handling rate of large RO-RO's in the No. 2 area. The special RO-RO facility at berths Nos 5 and 6 must be completed. This will relieve the problem of having to shift vessels from the No. 2 to the No. 5 facility to take on motor vehicles. In other words, it will solve the problem raised by Captain G. Grin'ko in his article published in MORSKOY FLOT No 11, 1983.

There is one more important problem connected with RO-RO shipments through the Ilichevsk Port. The start of Ilichevsk-Varna ferry service has completely changed the nature of the USSR-Bulgaria route. However, this affects only part of the freight traffic. Alongside one of the most efficient transport systems--ferry service--operate the traditional, obsolete all-purpose vessels "Bogdan Khmel'nitskiy" and "Vasil Aprilov." These ships haul heavy equipment and metal. The freights occupy an entire freight-handling facility at Ilichevsk. In addition, the Kherson Port and Danube ports handle a large

volume of import goods from Bulgaria in this same obsolete manner.

The possibilities of rail service between Ilichevsk and Varna have been practically exhausted. Its further development will require significant capital investment and time. Thus, the time has come to organize, along with railroad ferry service, motor-vehicle ferry shipments, using "Inzhener Machul'skiy"-class RO-RO's. Perhaps in the future, special maritime motor-vehicle ferries will be utilized.

A feasible means of consolidating freight is to use rubber-tired semi-trailers and trailers.

The Ilichevsk Port is practically ready for such shipments. The RO-RO facility in the No. 5 freight facility can handle this type of traffic without additional construction.

It makes sense to reach an agreement with the Bulgarians on organizing trial shipments. This would make it possible for one or two vessels to handle the entire freight traffic, freeing five or six all-purpose bulk carriers. It would also free up the port facilities at Ilichevsk and several other ports to handle other economically important freights. Most importantly, it would make for highly efficient foreign trade transport service between the USSR and Bulgaria. Then the rail- and motor vehicle-ferry services would complement one another.

In addition, this would make it possible to reduce part of the load from the very busy Ukrainian railroads by transferring part of the shipments to truck traffic. It would also make it possible to develop truck transport to Bulgaria, which would be in the economic interest of both countries.

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'BIG BAG' CONTAINERS USED EFFECTIVELY AT BERDYANSK PORT

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[Article by E. Lashun, process engineer, Berdyansk Port: "Soft Containers Are Efficient"]

[Text] The port workers in Berdyansk have long been working on the problem of mechanizing the handling of bagged cargoes.

In October 1983 bagged cement, packed in soft containers, was unloaded into open rail cars. This not only reduced manual labor, but also helped free up boxcars, which are in short supply.

The "Big Bag" is a large, strong polyethylene bag that can hold up to one ton of bulk or standard-size bagged material. The use of the Big Bag has completely eliminated the losses that were formerly unavoidable when handling bagged materials. In addition, the most labor-intensive manual operations have been completely mechanized.

When the vessels "Sergey Gusev" and "Navashino" arrived in port one right after another from Bulgaria, the port faced a problem: the two vessels were loaded with soda ash and caustic soda packed in Big Bags. Special lifting devices had to be quickly made to handle the bags.

V. Oguy, V. Kireyev, A. Kundenko and V. Starkov, port inventors, designed and built the special lifting device. Using the device, workers unloaded the 2,000 tons of mineral products from the 2 vessels in a short time, saving labor resources. The containers were not even slightly damaged, which is very important, given the aggressive nature of the chemicals.

The introduction of the new lifting devices was accompanied by an improvement in the labor norms.

The port's leading collective--the direct cost-account specialized consolidated complex brigade headed by A. Nikolayenko, holder of the Badge of Honor--operated with the new work norms. They did very well, because the work became more attractive and safer. One team, headed by I. Spodarik, of this brigade produced a record: they overfulfilled their complex work norm by 65 percent.

The efficiency of the Big Bags is shown by the following example. The team of V. Pokhol'chuk, part of the brigade headed by Veteran of Labor V. Sysko, packed cement in the Big Bags and loaded them on rail cars. The work was completed quickly, and the complex work norm was overfulfilled by 56 percent.

The use of Big Bags has produced an annual savings of 8,000-10,000 rubles.

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